

# Development Tools for ARM-based microcontrollers - Select from the best in support

All of NXP's ARM microcontroller products are supported by a well established – and rapidly growing – network of third-party tool suppliers. Customers have direct access to a wide set of options, from evaluation boards and emulators to compilers, debuggers, RTOSs, software stacks, and more. This document provides an overview of the exceptional tool support offering that is available for our ARM-based microcontrollers. For further information about NXP microcontrollers and the surrounding ecosystem please visit [www.nxp.com/microcontrollers](http://www.nxp.com/microcontrollers).

## Evaluation Boards, Starter Kits, and Single Board Computers (SBCs)

Evaluation boards and Starter Kits are an inexpensive way to experience the features of the NXP microcontroller devices and the software development tools and sample applications surrounding them. Some kits contain a JTAG unit for software debugging and device programming as well as free evaluation versions of integrated development environments IDEs, helping you to start developing your application quickly and easily. Single-Board Computers (SBCs), also called System-On-Modules (SOMs), allow you to reduce time-to-market and costs in all stages of embedded design from evaluation and prototyping to development and OEM deployment.

| Supplier         | Board                 | Supported Devices |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         | Populated Device | Comments |         |         |         |         |         |         |         |         |         |         |         |         |   |                                     |
|------------------|-----------------------|-------------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|------------------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---|-------------------------------------|
|                  |                       | LPC111x           | LPC1114x | LPC13xx | LPC175x | LPC176x | LPC210x | LPC211x | LPC212x | LPC219x | LPC213x | LPC214x | LPC215x | LPC221x | LPC222x | LPC229x | LPC236x | LPC237x | LPC238x | LPC242x | LPC245x |                  |          | LPC246x | LPC247x | LPC288x | LPC291x | LPC292x | LPC293x | LH754xx | LH795xx | LH7A4xx | LPC313x | LPC314x | LPC315x | LPC318x                                     | LPC32xx                             |
| ARM              | mbed                  |                   |          |         |         | •       |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                  |          |         |         |         |         |         |         |         |         |         |         |         |         | LPC1768                                     | Rapid prototyping tool              |
| Code Red         | RDB1768               |                   |          |         | •       | •       |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                  |          |         |         |         |         |         |         |         |         |         |         |         |         | LPC1768                                     | LPC1700-based evaluation board      |
| Embedded Artists | EA-QSB-xxx            |                   |          |         |         |         | •       | •       | •       | •       | •       | •       |         |         |         |         |         |         |         |         |         |                  |          |         |         |         |         |         |         |         |         |         |         |         | various | QuickStart Boards with headers              |                                     |
|                  | EA-EDU-xxx            |                   |          |         |         |         | •       |         |         |         | •       | •       |         |         |         |         |         |         |         |         |         |                  |          |         |         |         |         |         |         |         |         |         |         |         | various | Education Boards with various add-on boards |                                     |
|                  | EA-OEM-xxx            |                   |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         | •       | •                | •        |         |         |         |         |         |         |         |         |         |         | •       | various | SOM OEM boards with or w/o base boards      |                                     |
|                  | LPCXpresso            | •                 |          | •       |         | •       |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         | •                | •        | •       |         |         |         |         |         |         |         |         |         |         | •       | various                                     | Plugs into LPCXpresso Baseboard     |
| Embest           | LPCEB2000-x           |                   |          |         |         |         |         |         |         |         |         |         |         | •       |         | •       |         |         |         |         |         |                  |          |         |         |         |         |         |         |         |         |         |         |         | various | 3 CPU module boards + Expansion board       |                                     |
|                  | LPCEB2300             |                   |          |         |         |         |         |         |         |         |         |         |         |         |         |         | •       |         |         |         |         |                  |          |         |         |         |         |         |         |         |         |         |         |         |         | LPC2368                                     | Evaluation board for LPC236x series |
|                  | EM-LPC2478            |                   |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                  |          |         |         |         |         |         |         |         |         |         |         |         |         | LPC2478                                     | Evaluation board for LPC247x series |
|                  | EM-LPC175X            |                   |          |         |         | •       |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                  |          |         |         |         |         |         |         |         |         |         |         |         |         | LPC175x                                     | Evaluation board for LPC175x series |
|                  | EM-LPC176X            |                   |          |         |         |         | •       |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                  |          |         |         |         |         |         |         |         |         |         |         |         |         | LPC176x                                     | Evaluation board for LPC176x series |
|                  | EM-LPC1300            |                   |          |         | •       |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                  |          |         |         |         |         |         |         |         |         |         |         |         |         | LPC1300                                     | Evaluation board for LPC1300 series |
|                  | Blue Sprite (LPC1100) |                   | •        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                  |          |         |         |         |         |         |         |         |         |         |         |         |         | LPC1100                                     | Evaluation board for LPC1100 series |
|                  | MINI 3250             |                   |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                  |          |         |         |         |         |         |         |         |         |         |         |         |         | •   | LPC3250                             |

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| Supplier         | Board              | Supported Devices |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               | Populated Device | Comments |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  |  |   |   |         |  |
|------------------|--------------------|-------------------|----------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------------|---------------|---------------|------------------|----------|---------|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--|--|---|---|---------|--|
|                  |                    | LPC111x           | LPC11C1x | LPC13xx  | LPC175x | LPC176x | LPC210x | LPC211x | LPC212x | LPC219x | LPC213x | LPC214x | LPC215x | LPC221x | LPC222x | LPC229x       | LPC236x       | LPC237x       |                  |          | LPC238x | LPC242x  | LPC245x | LPC246x | LPC247x | LPC288x | LPC291x | LPC292x | LPC293x | LH754xx | LH795xx | LH7A4xx | LPC313x | LPC314x | LPC315x                                  | LPC318x  | LPC32xx                                     |   |         |  |
| NXP              | IRD-LPCxxxx        | •                 |          |          | •       | •       |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         | various                                  | LPCxxxx Industrial Reference Designs (IRDs)                      |   |   |         |  |
|                  | LPCXpresso         | •                 |          | •        | •       |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         | various                                  | Ultra Low cost development board with IDE supporting 128KB Code. |   |   |         |  |
| Oasis            | various            |                   |          |          |         |         | •       | •       |         | •       | •       |         | •       |         | •       |               |               |               |                  |          | •       | •  | •       |         |         |         |         |         |         |         |         |         |         | various | Oasis Technologies                       |  |   |   |         |  |
| Olimex           | LPC-H2xxx          |                   |          |          |         | •       | •       | •       |         | •       | •       |         | •       |         | •       |               |               |               |                  |          |         |  |         | •       |         |         |         |         |         |         |         |         |         | various | Compact Header Prototype Boards          |  |   |   |         |  |
|                  | LPC-P2xxx          |                   |          |          |         | •       | •       | •       |         | •       | •       |         |         |         |         |               | •             |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         | various | Prototype Boards                         |  |   |   |         |  |
|                  | LPC-MT-21xx        |                   |          |          |         | •       |         |         |         | •       |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         | various | Small boards w/ 16x2 LCD + 5 buttons     |  |   |   |         |  |
|                  | LPC-E2xxx          |                   |          |          |         |         | •       | •       |         |         |         |         | •       |         | •       |               |               |               |                  |          |         | •  | •       |         |         |         |         |         |         |         |         |         |         | various | Prototype boards with Ethernet interface |  |   |   |         |  |
|                  | LPC-2xxxSTK        |                   |          |          |         |         |         |         |         |         |         |         |         |         |         |               | •             |               |                  |          |         | •  | •       | •       |         |         |         |         |         |         |         |         |         | various | Development boards for LPC23xx/24xx      |  |   |   |         |  |
|                  | LPC1766-STK        |                   |          |          |         | •       |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         | Development board for LPC1766            |  |   |   |         |  |
|                  | LPC-H3131          |                   |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         | lpc3131 header board                     |  |   |   |         |  |
|                  | LPC-P1114          | •                 |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  | LPC1114 Prototype board  |   |   |         |  |
| PASAT            | LPC-P1343          |                   |          | •        |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         | LPC1343 Prototype board                  |  |   |   |         |  |
|                  | various            |                   |          |          |         | •       | •       | •       | •       | •       |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         | various | Single Board Computer DIP modules        |  |   |   |         |  |
| PHYTEC           | phyCORE-229x       |                   |          |          |         |         |         |         |         |         |         |         |         | •       | •       | •             |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         | LPC2294                                  | SOM + RDK for LPC229x  |   |   |         |  |
|                  | phyCORE-3180       |                   |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         | LPC3180                                  | SOM, RDK, Linux and WinCE BSPs for LPC3180                       |   |   |         |  |
| Phyton           | phyCORE-3250       |                   |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         | •       | LPC3250                                  | SOM, RDK, Linux and WinCE BSPs for LPC32x0                       |   |   |         |  |
|                  | TB2-LPC21xx        |                   |          |          |         |         | •       | •       | •       | •       | •       |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         | various                                  | Simple target / header boards                                    |   |   |         |  |
| Signum           | EVB-LPC2138        |                   |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  | LPC2138  | General-purpose eval board for LPC213x      |   |         |  |
|                  | EVM-LPC2148        |                   |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  |  | LPC2148                                     | General-purpose eval board for LPC214x    |         |  |
| SPJ              | Mini-ARM-xxxx      |                   |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  | various  | ARM microcontroller based Evaluation Boards |   |         |  |
| uCdragon         | YL-LPCxxxx         |                   |          |          |         | •       |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         | •  | various  | ARM microcontroller based Evaluation Boards |   |         |  |
| ZLG              | EasyARM2131        |                   |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  | LPC2131  | Evaluation Boards for LPC2100/LPC2200       |   |         |  |
|                  | SmartARM2200       |                   |          |          |         |         |         |         |         |         |         |         |         |         | •       | •             | •             |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  |  |   |   |         |  |
|                  | SmartARM2300       |                   |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  |  |   |   |         |  |
|                  | SmartARM2400       |                   |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  |  |   |   |         |  |
|                  | MiniARM M2x        |                   |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  |  | various                                     | SBCs based on LPC237x / LPC2478           |         |  |
|                  | TinyARM T23        |                   |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  |  | various                                     | SBCs based on LPC236x / LPC2387 (100 pin) |         |  |
|                  | SmartARM3250       |                   |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  | •  | LPC3250                                     |   |         |  |
|                  | SmartARM3130       |                   |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  |  |   | LPC3131                                   |         |  |
|                  | SmartCortexM3-1700 |                   |          |          |         |         | •       |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  |  |   | LPC768                                    |         |  |
|                  | EasyCortexM3-1752  |                   |          |          |         |         |         | •       |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  |  |   |   | LPC1752 |  |
|                  | EasyCortexM3-1300  |                   |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  |  |   |   | LPC1343 |  |
| TinyM0—Cortex-M0 | •                  |                   |          |          |         |         |         |         |         |         |         |         |         |         |         |               |               |               |                  |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  |  |   | LPC1114                                   |         |  |
| Family           |                    | LPC1000           |          |          | LPC2000 |         |         |         |         |         |         |         |         |         |         | LH7 / LH7A    |               |               | LPC3000          |          |         |  |         |         |         |         |         |         |         |         |         |         |         |         |  |  |   |   |         |  |
| Core             |                    | M0                | M3       | ARM7TDMI |         |         |         |         |         |         |         |         |         |         | ARM968E | <sup>1)</sup> | <sup>2)</sup> | <sup>3)</sup> | ARM926EJ         |          |         | <sup>1)</sup> ARM7TDMI <sup>2)</sup> ARM720T <sup>3)</sup> ARM922T |         |         |         |         |         |         |         |         |         |         |         |         |  |  |   |   |         |  |

## Software Development Tool Chains (including associated JTAG debuggers / emulators)

Selecting the right software development tool chain is equally important to selecting the right microcontroller. NXP's microcontrollers are supported by a large number of software development tools. Integrated Development Environments (IDEs) provide you with a graphical project management interface for all steps of your application development, including editing, compiling, and debugging your application code. Many IDEs work with a variety of JTAG debuggers, emulators, and compilers for additional flexibility.

| Supplier                     | Software Package                           | Integrated Development Environment (IDE)       | Associated / Supported C/C++ Compiler(s)       | Associated Debugger Software                         | Supported In-Circuit debuggers, emulators                      |
|------------------------------|--|--|--|--|--|
| Altium / TASKING             | VX-toolset for ARM                         | TASKING EDE (Embedded Development Environment) | TASKING compiler                               | TASKING CrossView Pro                                | e.g. Hitex Tantino / Tanto, SEGGER J-Link                      |
| Amontec                      | Software Development Kit for ARM (sdk4arm) | Eclipse platform / Embedded Zylind plug-ins    | GNU ARM GCC                                    | GNU ARM GDB (+ Insight)                              | Amontec JTAGkey  |
| ARM                          | RealView Development Suite (RVDS)          | ARM Workbench IDE                              | ARM RealView compiler                          | ARM RealView Debugger                                | RealView ICE, RealView Trace, RealView Trace 2                 |
| Ashling                      | AsIDE for ARM                              | AsIDE (Ashling IDE)                            | GNU; also GHS, Keil/ARM, IAR and others        | Ashling PathFinder Source Debugger                   | Ashling Opella, Vitra  |
| Code Red                     | Red Suite 2                                | Red Suite 2 IDE (Eclipse-based)                | GNU w/ Code Red libraries                      | Red Suite Debugger including Red Trace functionality | Red Probe  |
| CodeSourcery                 | Sourcery G++                               | Sourcery G++ IDE (Eclipse-based)               | GNU ARM GCC                                    | Sourcery G++ Debugger                                | many popular JTAG, BDM and USB debuggers as well as GDB Server |
| Computex                     | CSIDE                                      | CSIDE IDE                                      | various  | CSIDE Debugger                                       | Computex PALMiCE debuggers and emulators                       |
| CooCox                       | CooCox                                     | CoIDE  | GNU ARM GCC                                    | CoDebugger   | Colink, CoLinkEx   |
| Embest                       | Embest IDE for ARM                         | Embest IDE                                     | GNU; also ARM                                  | Embest Debugger                                      | Embest PowerICE / UNetICE                                      |
| Express Logic                | BenchX                                     | BenchX IDE (Eclipse-based)                     | GNU  | BenchX Debugger (GDB debugger engine)                | BenchX Debug Probe   |
| Green Hills Software         | Green Hills Development Tools for ARM      | MULTI  | Green Hills optimizing compilers               | Green Hills Debugger / TimeMachine                   | Green Hills Probe / SuperTrace Probe                           |
| Hitex Development Tools      | HiTOP IDE/Debugger                         | HiTOP  | GNU; also TASKING, Keil/ARM, IAR               | Hitex HiTOP  | Hitex Cortino for Cortex / Tantino / Tanto for ARM             |
| IAR                          | Embedded Workbench for ARM (EWARM)         | EWARM  | IAR compiler                                   | IAR C-SPY  | IAR J-Link / J-Trace; other RDI-based JTAG debuggers           |
| Ice Technology (Nohau brand) | Nohau EMUL-ARM                             | Nohau Seehau User Interface                    | GNU; supports various 3rd party compilers      | Nohau Seehau debugger                                | Nohau EMUL-ARM PC  |
| ImageCraft                   | ICCV7                                      | ImageCraft IDE                                 | ICCV7  | NoICE-ARM  | Nohau, SEGGER, Lauterbach, Ashling, CrossWorks, etc.           |
| iSYSTEM                      | winIDEA                                    | winIDEA  | supports all major ARM compilers               | iSYSTEM winIDEA                                      | iONE, iC3000, iC5000   |
| I2ST                         | MicroEJ                                    | Eclipse Plugin                                 | Gcc, Greenhills, IAR / Java: any compiler      | GDB, Java: JDWP                                      | Zylin  |
| Keil / ARM                   | Microcontroller Development Kit (MDK-ARM)  | µVision4 IDE                                   | ARM RealView; also GNU                         | Keil µVision Debugger                                | Keil ULINK2;ULINKpro, also Signum, Hitex, iSYSTEM, etc.        |
| Lauterbach                   | TRACE32                                    | TRACE32 PowerView IDE                          | supports all major ARM compilers               | TRACE32 PowerView debugger, TRACE32-MON              | TRACE-32 ICD, TRACE-32 PowerTrace, TRACE-32 ETB                |
| Mentor Graphics              | EDGE                                       | EDGE IDE (Eclipse-based)                       | EDGE compiler                                  | EDGE Debugger (Eclipse-based)                        | MAJIC JTAG Probe   |
| National Instruments         | LabVIEW for ARM                            | LabVIEW Graphical Programming solution         | ARM RealView (via Keil uVision)                | Keil µVision Debugger                                | Keil ULINK2; also Signum, Hitex, iSYSTEM, etc.                 |
| NXP                          | LPCXpresso                                 | LPCXpresso                                     | GNU  | LPCXpresso   | LPCLink, Redprobe  |
| Oasis Technologies           | Triton IDE                                 | Triton IDE                                     | GNU  | Triton debugger                                      | Odyssey Ethernet JTAG Debugger                                 |
| Phyton                       | CodeMaster-ARM                             | CodeMaster-ARM IDE                             | Phyton CMC; also GNU                           | CodeMaster-ARM + OCD driver                          | JEM-ARM JTAG debugger  |
| pls Development Tools        | Universal Debug Engine (UDE)               | Universal Debug Engine (UDE) IDE               | supports all available ARM compilers           | Universal Debug Engine (UDE)                         | pls Universal Access Devices (UAD2compact, UAD2, UAD2+, UAD3)  |
| Raisonance                   | RIDE                                       | RIDE (Raisonance IDE)                          | GNU  | RIDE debugger  | Raisonance RLink (Std / Pro)                                   |
| Rowley Associates            | CrossWorks for ARM                         | CrossStudio                                    | GNU w/ Rowley libraries                        | CrossStudio debugger                                 | Rowley CrossConnect for ARM; Segger wJ-Link; etc.              |
| Signum Systems               | Chameleon                                  | Chameleon IDE                                  | supports all major ARM compilers including GNU | Signum Chameleon debugger                            | Signum JTAGjet, JTAGjet-Trace                                  |
| SPJ Technologies             | SCARM                                      | SCARM IDE                                      | SCARM C compiler; also GNU                     | SDB Debugger   | SPJ Systems' JTAGs (SJT-S and SJT-U)                           |
| ZLG                          | TKStudio                                   | TKStudio IDE                                   | GNU, ADS, IAR, and RealView MDK                | TK Studio Debugger                                   | TKScope(K8/K9/DK9), AK100 etc                                  |

## JTAG Debuggers and Trace Emulators (most can also be used for on-chip Flash programming)

In-circuit emulators and JTAG debuggers are extremely valuable tools when it comes to software debugging and on-chip Flash programming. In addition, the vast majority of NXP's microcontrollers allow instruction and/or data trace capabilities via the Single Wire Viewer (SWV, in the LPC1700 devices), the Embedded Trace Macrocell (ETM; in most LPC2000 devices), or the Embedded Trace Buffer (ETB; in the LPC3000 family).

| Supplier    | JTAG debuggers / Trace Emulators | Supported Devices |         |          |         |         |         |         |         |         |         |         |         |         |         | Comments |               |  |
|-------------|----------------------------------|-------------------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------------|--|
|             |                                  | LPC1102           | LPC111x | LPC11C1x | LPC13xx | LPC17xx | LPC21xx | LPC22xx | LPC23xx | LPC24xx | LPC28xx | LPC29xx | LH754xx | LH795xx | LH7A4xx |          | LPC3xxx       |  |
| Abatron     | BDIx000                          |                   |         |          |         |         | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | BDI1000, BDI2000, BDI3000  |
| Amontec     | JTAGkey                          |                   |         |          |         | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | Generic USB JTAG cable interface   |
| Arium       | HS-1000S                         |                   |         |          | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | Run control with trace   |
|             | LX-1000                          |                   |         |          | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | Run control with up to 8 GBytes of trace   |
|             | LC-500                           |                   |         |          | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | Run control  |
| ARM         | RealView ICE                     | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             |  |
|             | RealView Trace 2                 |                   |         |          |         | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             |  |
| Ashling     | Opella                           | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | High speed Run Time control JTAG probe   |
|             | Vitra                            | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | Run time control with Trace  |
| Brendes     | BICEPS                           |                   |         |          |         |         | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | Real-Time-Trace or JTAG Emulator   |
| Code Red    | Red Probe                        | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             |  |
| Computex    | PALMICE3,2H                      |                   |         |          | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | SWD/SWV,ETM Trace or JTAG Emulator   |
| CooCox      | Colink                           |                   |         |          | •       | •       |         |         |         |         |         |         |         |         |         |          |               | JTAG debug interface for Cortex™-M3  |
|             | CoLinkEx                         |                   | •       |          | •       | •       |         |         |         |         |         |         |         |         |         |          |               | SWD  |
| Embest      | Embest PowerICE                  |                   |         |          |         | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | parallel-JTAG Emulator for ARM   |
|             | UNetICE                          |                   |         |          |         | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | high-speed JTAG emulator (via USB)   |
| Green Hills | Probe                            |                   |         |          | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             |  |
|             | SuperTrace Probe                 |                   |         |          | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             |  |
| Hitex       | Cortino                          | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | JTAG debug interface for Cortex™-M   |
|             | Tantino                          | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | JTAG debug interface for Cortex™-M & ARM   |
|             | Tanto                            |                   |         |          |         | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | ARM7 and ARM9  |
| IAR         | IAR J-Link                       | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | USB-JTAG/SWD debug probe for ARM   |
|             | IAR J-Trace                      |                   |         |          |         | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | IAR J-Trace for ARMhardware trace probe  |
| Ice Tech    | Nohau EMUL-ARM PC                |                   |         |          |         | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | Trace Module available   |
| iSYSTEM     | iC3000                           | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | Debugger   |
|             | iC3000 + iTRACE                  | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | Debugger with ETM Trace  |
| Keil / ARM  | ULINK2                           | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | Trace via serial wire viewer for M3  |
|             | ULINK-ME                         | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | Trace via serial wire viewer for M3  |
|             | ULINKpro                         | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | Supports SWV and 4 -bit ETM trace  |
| Lauterbach  | TRACE32-ICD                      | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | JTAG debugger  |
|             | TRACE32-PowerTrace               |                   |         |          |         |         | •       | •       | •       | •       | •       |         |         |         |         |          |               | JTAG w/Trace   |
|             | TRACE32-ETB                      |                   |         |          |         |         |         |         |         |         |         |         |         |         |         | •        | •             | JTAG w/ETB Trace   |
| NXP         | LPCLINK                          | •                 | •       | •        | •       | •       | •       | •       |         |         | •       |         |         |         |         |          | JTAG Debugger |  |
| Oasis       | Odyssey                          |                   |         |          |         | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | Ethernet JTAG Debugger   |
| Olimex      | ARM-***                          | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | ARM-USB-OCD/TINY/TINY-H, ARM-JTAG/EW   |
| Phyton      | JEM-ARM                          |                   |         |          |         |         | •       | •       | •       | •       | •       |         |         |         |         |          |               |  |
| pls         | UAD2compact                      | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | JTAG debugger  |
|             | UAD2, UAD2+                      | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | JTAG-Debug, SWD/SWV-Debug/Trace  |
|             | UAD3+                            | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | JTAG,SWD/SWV,ETM/ETB Trace   |
|             | UDE ETM/ETB Trace                |                   |         |          |         |         | •       | •       | •       | •       | •       |         |         |         |         |          | •             | ETM / ETB Trace debugger   |
| Raisonance  | RLink-Std                        | •                 | •       | •        | •       | •       | •       | •       |         |         |         |         |         |         |         |          |               | Debug up to 32 KB in RAM or Flash  |
|             | RLink-Pro                        | •                 | •       | •        | •       | •       | •       | •       |         |         |         |         |         |         |         |          |               | Unlimited debugging, programming   |
| Rowley      | CrossConnect for ARM             | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             |  |
| SEGGER      | J-Link                           | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | unlimited Flash Breakpoints, native support by IAR, KEIL, Rowley, add-on-support for RDI and GDB |
|             | J-Link Pro                       | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | unlimited Flash Breakpoints, native support by IAR, KEIL, Rowley, add-on-support for RDI and GDB |
|             | J-Link Ultra                     | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | unlimited Flash Breakpoints, native support by IAR, KEIL, Rowley, add-on-support for RDI and GDB |
|             | J-Trace                          |                   |         |          |         | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •             | J-Trace for ARM, J-Trace for Cortex M3   |

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| Supplier | JTAG debuggers / Trace Emulators | Supported Devices |         |          |         |          |         |         |         |         |         |            |         |         |         | Comments  |                                      |
|----------|----------------------------------|-------------------|---------|----------|---------|----------|---------|---------|---------|---------|---------|------------|---------|---------|---------|---|--------------------------------------|
|          |                                  | LPC1102           | LPC111x | LPC11C1x | LPC13xx | LPC17xx  | LPC21xx | LPC22xx | LPC23xx | LPC24xx | LPC28xx | LPC29xx    | LH754xx | LH795xx | LH7A4xx |   | LPC3xxx                              |
| Signum   | JTAGjet                          | •                 | •       | •        | •       | •        | •       | •       | •       | •       | •       | •          | •       | •       | •       | •   | Includes Chameleon Debugger, ETB     |
|          | JTAGjet-Trace                    | •                 | •       | •        | •       | •        | •       | •       | •       | •       | •       | •          | •       | •       | •       | •   | Includes Chameleon Debugger, ETM/ETB |
| uCdragon | ARMstep-U / -P                   |                   |         |          |         |          | •       | •       | •       | •       | •       | •          | •       | •       | •       |   |                                      |
| Yokogawa | 'advice' series                  |                   |         |          |         |          | •       | •       | •       | •       | •       | •          | •       | •       | •       | works with microVIEW-PLUS debugger                      |                                      |
| ZLG      | TKScope K8                       | •                 | •       |          | •       | •        | •       | •       | •       | •       | •       | •          | •       | •       | •       |   |                                      |
|          | TKScope K9                       | •                 | •       |          | •       | •        | •       | •       | •       | •       | •       | •          | •       | •       | •       |   |                                      |
|          | TKScope DK9                      | •                 | •       |          | •       | •        | •       | •       | •       | •       | •       | •          | •       | •       | •       |   |                                      |
|          | AK100                            | •                 | •       |          | •       | •        | •       | •       | •       | •       | •       | •          | •       | •       | •       |   |                                      |
| Family   |                                  | LPC1000           |         |          |         |          | LPC2000 |         |         |         |         | LH7 / LH7A |         |         | 1)      | 1) LPC3000  |                                      |
| Core     |                                  | M0                |         | M3       |         | ARM7TDMI |         |         |         |         | 2)      | 3)         | 4)      | 5)      | 6)      | 2) ARM968 3) ARM7TDMI 4) ARM720T 5) ARM922T 6) ARM926EJ |                                      |

### Operating Systems (RTOS / OS)

Operating Systems use specialized scheduling algorithms in order to provide the software developer with the tools necessary to produce deterministic behavior in the final system. The variety of operating systems available for NXP microcontrollers ranges from small real-time kernels for deeply embedded systems to large, complex operating systems like Linux and Windows CE.

| Supplier                | Operating Systems (RTOS / OS) | Supported Devices |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         | Comments                          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |  |
|-------------------------|-------------------------------|-------------------|----------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|------------|---------|-----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---|--|
|                         |                               | LPC111x           | LPC11C1x | LPC13xx  | LPC175x | LPC176x | LPC210x | LPC211x | LPC212x | LPC219x | LPC213x | LPC214x | LPC215x | LPC221x | LPC222x  | LPC229x | LPC236x    | LPC237x |                                   | LPC238x | LPC242x | LPC245x | LPC246x | LPC247x | LPC288x | LPC291x | LPC292x | LPC293x | LH754xx | LH795xx | LH7A4xx | LPC313x | LPC314x | LPC315x | LPC318x | LPC32xx |   |  |
| Adeneo Embedded         | Windows CE                    |                   |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |  |
|                         | Linux                         |                   |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   | Free binary eval versions available for LPC24xx: uCLinux |
| BSQUARE                 | .NET MicroFramework           |                   |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |  |
|                         | Windows CE                    |                   |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   | Free binary eval versions available                      |
| CMX                     | CMX-RTX                       | •                 | •        | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •          | •       | •                                 | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | Full source code included, no royalties                                       |  |
|                         | CMX-TINY+                     | •                 | •        | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •          | •       | •                                 | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | Full source code included, no royalties                                       |  |
| CooCox                  | CoOS                          | •                 | •        | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •          | •       | •                                 | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | Free and open ARM Cortex M RTOS   |  |
| eCosCentric             | eCos                          |                   |          |          |         | •       |         |         |         | •       | •       |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         | Combined with eCosPro IDE   |  |
| ENE A                   | OSE                           |                   |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |  |
| eSysTech                | X Real-Time Kernel            |                   |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |  |
| Express Logic           | ThreadX                       |                   |          |          | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •          | •       | •                                 | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       |   |  |
| GHI                     | .NET MicroFramework           |                   |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         | USBizi and EmbeddedMaster products  |  |
| Green Hills             | Integrity                     |                   |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         | Call GHS regarding BSP availability   |  |
|                         | μ-velOSity                    |                   |          |          | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •          | •       | •                                 | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | runs on any ARM7 or ARM9 core   |  |
| I2ST                    | IceOS                         |                   |          |          |         | •       |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         | Suws scheduling   |  |
| IAR                     | PowerPac RTOS                 |                   |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |  |
| InterNiche              | NicheTask                     | •                 | •        | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •          | •       | •                                 | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       |   |  |
| Keil / ARM              | RTX                           | •                 | •        | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •          | •       | •                                 | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       |   |  |
| Mentor Graphics         | Nucleus OS                    |                   |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         | Easily ported to other NXP controllers  |  |
| Micrium                 | μC/OS-II                      |                   |          |          |         | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •          | •       | •                                 | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | Runs on Any ATM7, ARM9, Cortex-M3   |  |
|                         | μC/OS-III                     |                   |          |          |         | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •          | •       | •                                 | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       |   |  |
| Micro Digital           | smxARM                        |                   |          |          | •       | •       |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         | Out-of-the-box RTOS, 30-Day Money Back Guarantee                              |  |
|                         | Windows CE                    |                   |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         | FREE WinCE 6.0 BSP from NXP   |  |
|                         | Linux for LPC32x0             |                   |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         | FREE Linux 2.6.34 BSP from NXP Check www.lpclinux.com for latest and support. |  |
|                         | Linux for LPC31xx             |                   |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         | FREE Linux 2.6.33 BSP from NXP Check www.lpclinux.com for latest and support. |  |
| Pumpkin                 | Linux for LH7/LH7A            |                   |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         | FREE Linux 2.6.16 BSP from NXP  |  |
|                         | Salvo RTOS                    |                   |          |          |         | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •          | •       | •                                 | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | Instruction-set architecture  |  |
| Quadros                 | RTXC Quadros                  |                   |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         | Highly customizable and reliable RTOS   |  |
| Real Time Engineers Ltd | FreeRTOS                      | •                 |          |          | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •          | •       | •                                 | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | Runs on any ARM7, ARM9, Cortex-M3   |  |
| SEGGER                  | embOS                         | •                 | •        | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •          | •       | •                                 | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       |   |  |
| Wind River              | VxWorks                       |                   |          |          |         |         |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |  |
| WITTENSTEIN             | OpenRTOS                      | •                 | •        | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •          | •       | •                                 | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | Commercial licensing for FreeRTOS   |  |
| Rowbots                 | Unison OS                     |                   |          |          | •       | •       |         |         |         |         |         |         |         |         |          |         |            |         |                                   |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         | POSIX Unison OS   |  |
| Family                  |                               | LPC1000           |          |          |         |         | LPC2000 |         |         |         |         |         |         |         |          |         | LH7 / LH7A |         |                                   | LPC3000 |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |  |
| Core                    |                               | M0                | M3       | ARM7TDMI |         |         |         |         | ARM968E |         |         | 1)      | 2)      | 3)      | ARM926EJ |         |            |         | 1) ARM7TDMI 2) ARM720T 3) ARM922T |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |   |  |

## TCP/IP (Ethernet) Stacks

Ethernet is the most widely-installed Local Area Network (LAN) technology in the world. Using Ethernet in embedded applications enables high-bandwidth data transfer and, in particular, lets the system connect to the Internet without using a computer. That opens up a number of possibilities, including the ability to report status to a web page or receive instructions remotely.

TCP/IP stacks enable quick configuration of the required Ethernet network options to minimize your time to market. There are more than 20 NXP ARM MCUs with built-in Ethernet, covering all three generations of ARM (ARM7, ARM9, and the new Cortex-M3). NXP uses essentially the same implementation across all three generations, so designers can save time and resources by reusing their Ethernet function when systems move to the next generation of ARM.

Please note that this table only includes devices with an on-chip 10/100 Ethernet MAC peripheral. Many of the TCP/IP stacks listed here also run on LPC / LH devices without on-chip Ethernet peripheral (by using an external Ethernet MAC).

| Supplier             | TCP/IP Stacks           | Supported Devices |         |         |          |         |         |         |         |         |               | Comments      |   |
|----------------------|-------------------------|-------------------|---------|---------|----------|---------|---------|---------|---------|---------|---------------|---------------|---|
|                      |                         | LPC175x           | LPC176x | LPC236x | LPC237x  | LPC238x | LPC245x | LPC246x | LPC247x | LH795xx | LPC32xx       |               |   |
| CMX                  | CMX-TCP/IP              |                   |         | •       | •        | •       | •       | •       | •       | •       | •             | •             | Full featured stack, source code included, no royalties               |
|                      | CMX-MicroNet            | •                 | •       | •       | •        | •       | •       | •       | •       | •       |               | •             | Very small ROM/RAM footprint, source code, no royalties               |
| Cypherbridge Systems | uSSL                    | •                 | •       | •       | •        | •       | •       | •       | •       | •       |               | •             | SSL, SSH, SCP, secure bootloader and remote installer, crypto library |
| Express Logic        | NetX                    | •                 | •       | •       | •        | •       | •       | •       | •       | •       |               | •             |   |
|                      | NetX Duo                | •                 | •       | •       | •        | •       | •       | •       | •       | •       |               | •             |   |
| Green Hills          | GHNNet                  | •                 | •       | •       | •        | •       | •       | •       | •       | •       |               | •             |   |
| I2ST                 | ECOM-Net                | •                 |         | •       |          |         |         |         | •       | •       |               | •             | Full-duplex, thread-safe  |
| IAR                  | PowerPac TCP/IP         |                   |         | •       | •        |         |         |         | •       | •       |               |               |   |
| InterNiche           | NicheLite               | •                 | •       | •       | •        | •       | •       | •       | •       | •       |               | •             |   |
|                      | NicheStack/IPv4         | •                 | •       | •       | •        | •       | •       | •       | •       | •       |               | •             |   |
|                      | NicheStack/Dual IPv4/v6 | •                 | •       | •       | •        | •       | •       | •       | •       | •       |               | •             | many additional plugins available                                     |
| Keil / ARM           | RL-TCPnet               | •                 | •       | •       | •        | •       | •       | •       | •       |         |               | •             | part of RL-ARM  |
| Mentor Graphics      | Nucleus Ethernet        |                   |         |         |          |         |         |         |         |         |               | •             | Easily ported to other NXP controllers                                |
| Micrium              | µC/TCP-IP               |                   |         |         | •        |         |         |         | •       | •       | •             | •             |   |
| Micro Digital        | smxNS                   | •                 | •       | •       | •        | •       | •       | •       | •       | •       |               | •             | Out-of-the-box TCP/IP Solution, 30-Day Money Back Guarantee           |
| NXP                  | NicheLite for LPC / LH  | •                 | •       | •       | •        | •       | •       | •       | •       | •       |               | •             | Free LPC/LH-specific NicheLite  |
| OnChip               | OT-NET                  |                   |         | •       | •        | •       | •       | •       | •       | •       |               |               | UDP,TCP,DHCP,DNS,ICMP,ARP   |
| Quadros              | RTXC Quadnet            | •                 | •       | •       | •        | •       | •       | •       | •       | •       |               | •             | Full-featured TCP/IP v4/6 solution                                    |
|                      | RTXC Quark              |                   |         | •       | •        | •       | •       | •       | •       | •       |               |               | Small footprint TCP/IPv4 solution                                     |
| SEGGGER              | embOS/IP                | •                 | •       | •       | •        | •       | •       | •       | •       |         |               | •             | High-performance IP-Stack,  |
| SEVENSTAX            | TCP/IP Stack            | •                 | •       |         | •        |         |         | •       | •       |         | •             | •             | TCP, UDP, IP, ICMP, IGMP, NTP   |
| Wittenstein          | Connect TCP/IP          | •                 | •       | •       | •        | •       | •       | •       | •       | •       |               | •             |   |
| ZLG                  | ZLG/IP                  | •                 | •       | •       | •        | •       | •       | •       | •       | •       |               | •             |   |
|                      | Family                  | LPC1000           |         |         | LPC2000  |         |         |         |         |         | LH            | <sup>1)</sup> | <sup>1)</sup> LPC3000   |
|                      | Core                    | M3                |         |         | ARM7TDMI |         |         |         |         |         | <sup>2)</sup> | <sup>3)</sup> | <sup>2)</sup> ARM720T <sup>3)</sup> ARM926EJ                          |

## USB Stacks (USB Device, USB Host, USB OTG)

Fast, reliable, easy-to-use, and able to draw power without a separate AC connection, the Universal Serial Bus (USB) is the world's most popular connector technology. Today, it appears in embedded applications of all kinds. In order to enable the rapid integration of USB support into your embedded system, USB stacks are critical and significantly reduce your time to market. With more than 50 options for ARM7, ARM9, and Cortex-M3 technologies, NXP leads the market in USB-equipped ARM MCUs. Please note that this table only includes devices with an on-chip USB Device, Host, and/or OTG peripheral.

| Supplier        | USB Stacks           | Supported Devices |         |         |          |         |         |         |         |         |         |         |         |               |               |          |         | Comments |  |         |         |         |  |
|-----------------|----------------------|-------------------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------------|---------------|----------|---------|----------|--|---------|---------|---------|--|
|                 |                      | LPC13xx           | LPC175x | LPC176x | LPC214x  | LPC215x | LPC236x | LPC237x | LPC238x | LPC242x | LPC245x | LPC246x | LPC247x | LPC288x       | LPC292x       | LPC293x  | LH795xx |          | LH7A4xx                                      | LPC313x | LPC315x | LPC318x | LPC32xx  |
| CMX             | CMX-USB Device       | •                 | •       | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •             | •             | •        |         |          | •  | •       | •       | •       | USB Device stack   |
|                 | CMX-USB Host         |                   | •       | •       |          |         | •       |         | •       | •       | •       | •       | •       |               | •             | •        |         |          | •  | •       | •       | •       | USB Host stack   |
|                 | CMX-USB OTG          |                   | •       | •       |          |         | •       |         | •       | •       | •       | •       | •       |               | •             | •        |         |          | •  | •       | •       | •       | USB On-the-Go stack  |
| Express Logic   | USBX Device          | •                 | •       | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •             | •             | •        | •       | •        | •  | •       | •       | •       | USB Device Stack   |
|                 | USBX Host            |                   | •       | •       |          |         | •       |         | •       | •       | •       | •       | •       |               | •             | •        |         | •        | •  | •       | •       | •       | USB Host / OTG stack   |
| HCC Embedded    | EUSBD                | •                 | •       | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •             | •             | •        |         |          | •  | •       | •       | •       | Device stack w/ many class drivers                                 |
|                 | EUSBH                |                   | •       | •       |          |         | •       |         | •       | •       | •       | •       | •       |               | •             | •        |         |          | •  | •       | •       | •       | Host stack w/ many class drivers                                   |
|                 | EUSB-OTG             |                   | •       | •       |          |         | •       |         | •       | •       | •       | •       | •       |               | •             | •        |         |          | •  | •       | •       | •       | USB OTG stack  |
| IAR             | PowerPac USB         | •                 | •       | •       | •        | •       | •       | •       |         |         |         | •       | •       |               |               |          |         |          |  |         | •       |         | USB Device Stack   |
| Jungo           | USBware Device Stack |                   |         |         |          |         | •       | •       | •       | •       | •       | •       | •       |               |               |          |         |          |  |         |         |         | USB 1.1/2.0 Device Stack   |
|                 | USBware Host Stack   |                   |         |         |          |         |         |         |         | •       | •       | •       | •       |               |               |          |         |          |  |         |         |         | USB 1.1/2.0 Host Stack   |
|                 | USBware OTG Stack    |                   |         |         |          |         |         |         |         | •       | •       | •       | •       |               |               |          |         |          |  |         |         |         | USB On-The-Go Stack  |
| Keil / ARM      | RL-USB               | •                 | •       | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       |               | •             | •        |         |          |  |         | •       |         | USB Device stack; part of RL-ARM                                   |
| Mentor Graphics | Nucleus-USB          |                   |         |         |          |         |         |         |         |         |         |         |         |               |               |          |         |          |  |         |         |         | • Device/Host/OTG  |
| Micrium         | µC/USB Device        | •                 | •       | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •             |               |          | •       | •        | •  | •       | •       | •       | USB Device stack   |
|                 | µC/USB Host          |                   | •       | •       |          |         | •       |         | •       | •       | •       | •       | •       | •             |               |          |         | •        | •  | •       | •       | •       | USB Host stack   |
|                 | µC/OTG               |                   |         |         |          |         |         |         |         |         |         |         |         |               |               |          |         |          |  |         |         |         | USB On-the-Go stack  |
| Micro Digital   | smxUSBD              | •                 | •       | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •             | •             | •        | •       | •        | •  | •       | •       | •       | USB Device Stack, 30-Day Money Back Guarantee                      |
|                 | smxUSBH              |                   | •       | •       |          |         |         | •       | •       | •       | •       | •       | •       | •             | •             | •        | •       | •        | •  | •       | •       | •       | USB Host Stack, 30-Day Money Back Guarantee                        |
|                 | smxUSBO              |                   |         |         |          |         | •       | •       | •       | •       | •       | •       | •       |               |               |          |         |          |  |         | •       | •       | USB OTG Stack, 30-Day Money Back Guarantee                         |
| NXP             | USBHostLite for LPC  |                   |         |         |          |         |         |         |         | •       | •       | •       | •       |               |               |          |         |          |  |         |         |         | Free USB Host Stack w/ MSC driver                                  |
| OnChip          | OT-USB (Device)      | •                 |         |         | •        | •       | •       | •       | •       | •       | •       | •       | •       | •             |               |          |         |          |  |         |         |         | • Supports MSC,CDC,HID and Audio                                   |
|                 | OT-USB (Host)        |                   |         |         |          |         | •       |         | •       | •       | •       | •       | •       |               |               |          |         |          |  |         |         |         | • Supports MSC,CDC,HID and Audio                                   |
| Quadros         | RTXCusb Device       | •                 | •       | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •             | •             | •        |         |          | •  | •       | •       | •       | Embedded USB Device stack  |
|                 | RTXCusb Host         |                   | •       | •       |          |         | •       |         | •       | •       | •       | •       | •       | •             |               | •        |         |          | •  | •       | •       | •       | Embedded USB Host stack  |
|                 | RTXCusb OTG          |                   | •       | •       |          |         | •       |         | •       | •       | •       | •       | •       | •             |               | •        | •       |          |  | •       | •       | •       | Embedded OTG stack   |
| SEGGER          | emUSB-Device         | •                 | •       | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •             | •             | •        | •       | •        | •  | •       | •       | •       | Device Stack, runs out of the box                                  |
|                 | emUSB-Host           |                   | •       | •       |          |         | •       |         | •       | •       | •       | •       | •       | •             | •             | •        | •       | •        | •  | •       | •       | •       | Host Stack, runs out of the box, driver for LPC313x in development |
| SourceForge     | lpcusb (free)        | •                 |         |         | •        | •       |         |         |         |         |         |         |         |               |               |          |         |          |  |         |         |         | Free open-source USB Device Stack                                  |
| Thesycon        | USB Device Stack     | •                 | •       | •       |          |         | •       | •       | •       | •       | •       | •       | •       |               |               |          |         |          |  |         |         | •       | CDC, HID, Raw Bulk   |
|                 | USB Host Stack       |                   | •       | •       |          |         |         | •       | •       | •       | •       | •       | •       |               |               |          |         |          |  |         |         | •       | Mass Storage, CDC, HID   |
|                 | Generic USBIO Driver |                   | •       | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •             | •             | •        | •       | •        | •  | •       | •       | •       | Windows 2000/XP/Vista and CE                                       |
|                 | USB CDC/ACM Driver   |                   | •       | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •             | •             | •        | •       | •        | •  | •       | •       | •       | Windows 2000/XP/Vista and CE                                       |
| ZLG             | ZLG/USB_H            |                   |         |         |          |         |         |         |         |         |         |         | •       |               |               |          |         |          |  |         |         |         | • USB 1.1/2.0 Host Stack   |
|                 | ZLG/USB_D            | •                 |         |         | •        |         | •       | •       | •       |         |         | •       | •       |               |               |          |         |          |  |         |         |         | • USB1.1/2.0 Device Stack  |
| Family          |                      | LPC1000           |         |         | LPC2000  |         |         |         |         |         |         |         |         |               | LH/LH7        |          | LPC3000 |          |  |         |         |         |  |
| Core            |                      | M3                |         |         | ARM7TDMI |         |         |         |         |         |         | ARM968  |         | <sup>1)</sup> | <sup>2)</sup> | ARM926EJ |         |          | <sup>1)</sup> ARM720T <sup>2)</sup> ARM926EJ |         |         |         |  |



## CAN (Controller Area Network) Drivers

The CAN bus is widely used in vehicles to connect engine control unit and transmission, or (on a different bus) to connect the door locks, climate control, seat control, etc. Today the CAN bus is also used as a fieldbus in general automation environments, primarily due to the low cost of integrated CAN controllers. Many NXP microcontrollers are equipped with on-chip CAN modules. The drivers listed below will help you get your Controller Area Network up and running quickly. Please note that this table only includes devices with one or more on-chip CAN peripherals.

| Supplier        | CAN Drivers     | Supported Devices |         |          |         |         |         |         |         |         |         |         |         |         |         |               | Comments               |   |
|-----------------|-----------------|-------------------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------------|------------------------|---|
|                 |                 | LPC1114x          | LPC175x | LPC176x  | LPC212x | LPC219x | LPC229x | LPC236x | LPC237x | LPC238x | LPC245x | LPC246x | LPC247x | LPC291x | LPC292x | LPC293x       |                        | LH754xx                                 |
| CMX             | CMX-CANopen     | •                 | •       |          | •       | •       | •       | •       | •       | •       | •       | •       | •       |         |         |               |                        | Full source code included, no royalties |
| eCosCentric     | eCosPro-CAN     | •                 |         |          |         |         | •       |         |         | •       |         | •       |         |         |         |               |                        | CANopen support also available          |
| Keil / ARM      | RL-CAN          | •                 | •       | •        | •       | •       |         | •       | •       | •       |         | •       | •       | •       | •       |               |                        | part of RL-ARM                          |
| Mentor Graphics | Nucleus CAN     |                   |         |          | •       |         |         |         |         |         |         |         |         |         |         |               |                        | Easily ported to other NXP controllers  |
| NXP             | AppNote AN10674 |                   |         |          | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •             |                        | LPC2000 CAN driver w/ FullCAN mode      |
| Quadros         | CANopenRT       | •                 | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •             |                        | Real-time CANopen stack                 |
|                 | Family          | LPC1000           |         |          | LPC2000 |         |         |         |         |         |         |         |         |         |         | LH            |                        |   |
|                 | Core            | M0                | M3      | ARM7TDMI |         |         |         |         |         |         |         | ARM968E |         |         |         | <sup>1)</sup> | <sup>1)</sup> ARM7TDMI |   |

## Graphics Libraries / Graphical User Interfaces (GUIs)

Liquid Crystal Displays (LCDs), especially those with color and touchscreen capabilities, make embedded systems much easier to use. As a result, they have become commonplace across the consumer, medical, industrial, recreational, communication, and automotive sectors. In recent years, the external LCD interface has moved onto the MCU itself, providing engineers with integrated options that reduce cost, shrink the design, increase reliability, and shorten time-to-market. Most of the software tools listed below are designed to provide graphical user interfaces (GUIs) for any application that operates with a graphical LCD. Please note that this table only includes devices with on-chip LCD graphics controller. Many of the software tools listed here also run on LPC devices without on-chip LCD graphics controller (by using an external LCD controller).

| Supplier        | Graphics Libraries / GUIs      | Supported Devices |            |               |               |               | Comments  |
|-----------------|--------------------------------|-------------------|------------|---------------|---------------|---------------|---|
|                 |                                | LPC247x           | LH754xx    | LH795xx       | LH7A4xx       | LPC32xx       |   |
| I2ST            | MicroUI / Micro Widget Toolkit | •                 |            |               |               | •             | Simulation on PC, Multi-touch   |
| Green Hills     | Graphics / LCD library         |                   |            |               |               | •             | Call GHS regarding driver availability  |
| Mentor Graphics | Nucleus LCD                    |                   |            |               |               | •             | Easily ported to other NXP controllers  |
|                 | Inflexion Engine               |                   |            | •             | •             | •             | 3D Touch Screen & Menuing UI Engine   |
|                 | UI Designer                    |                   |            | •             | •             | •             | Drag & Drop Toolkit with Previewer  |
| Micrium         | µC/GUI                         | •                 |            | •             | •             | •             |   |
| Mobiclip        | Mobiclip Video Codec           |                   |            | •             | •             | •             | Mobiclip used to be Actimagine  |
| Swell Software  | PEG Pro                        |                   |            | •             |               | •             |   |
|                 | PEG+                           | •                 | •          | •             | •             | •             |   |
|                 | C/PEG                          | •                 | •          | •             | •             | •             |   |
| NXP             | SWIM (AN10815)                 | •                 |            |               |               | •             | Free, simple graphics library from NXP  |
| SEGGER          | emWIN                          | •                 | •          | •             | •             | •             | High-performance Graphic Library with target simulation for PC                            |
| ZLG             | ZLG/GUI                        | •                 | •          | •             | •             | •             |   |
|                 | Family                         | <sup>1)</sup>     | LH7 / LH7A |               |               | <sup>2)</sup> | <sup>1)</sup> LPC2000 <sup>2)</sup> LPC3000   |
|                 | Core                           | <sup>3)</sup>     |            | <sup>4)</sup> | <sup>5)</sup> | <sup>6)</sup> | <sup>3)</sup> ARM7TDMI <sup>4)</sup> ARM720T <sup>5)</sup> ARM922T <sup>6)</sup> ARM926EJ |



| Supplier         | Programming Software / Hardware | Supported Devices |         |          |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         | Comments |         |         |          |         |         |                                     |   |
|------------------|---------------------------------|-------------------|---------|----------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|---------|----------|---------|---------|-------------------------------------|---|
|                  |                                 | LPC1102           | LPC111x | LPC11C1x | LPC13xx | LPC175x | LPC176x  | LPC210x | LPC211x | LPC212x | LPC219x | LPC213x | LPC214x | LPC215x | LPC221x | LPC229x | LPC236x | LPC237x | LPC238x | LPC245x | LPC246x |          | LPC247x | LPC288x | LPC291x  | LPC292x | LPC293x | LPC3141                             | LPC3131   |
| pls              | UDE MemTool                     | •                 | •       | •        | •       | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •       | •        | •       | •       | •                                   | Flash programming utility   |
| Raisonance       | RFlasher7                       |                   |         |          |         | •       | •        | •       |         |         |         |         |         |         |         |         |         |         |         |         |         |          |         |         |          |         |         |                                     | Requires RKit-ARM free download   |
| SEGGER           | Flasher ARM                     | •                 | •       | •        | •       | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •       | •        | •       | •       | •                                   | Flash programming via JTAG/SWD, RS232-remote control, standalone operation for in-the-field-service |
| Signum           | JTAGJet                         | •                 | •       | •        | •       | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •       | •        | •       | •       | •                                   | Programs all on-chip and external NOR and NAND devices via JTAG                                     |
| SMH Technologies | FlashRunner for LPC             |                   |         |          |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |          |         |         |          |         |         | Standalone / LAN/RS-232 connections |   |
| System General   | Txxx / Apxxx series             |                   |         |          |         | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       |          |         |         |          |         |         |                                     | Various programmers and sockets   |
| Xeltek           | SuperPro series                 |                   |         |          |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |          |         |         |          |         |         |                                     | Various programmers and sockets   |
| ZLG              | SmartPRO / EasyPRO              |                   | •       |          | •       | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •        | •       | •       | •        | •       | •       | •                                   | Various programmers and sockets   |
|                  | Family                          | LPC1000           |         |          |         |         | LPC2000  |         |         |         |         |         |         |         |         |         |         |         |         |         |         | LPC3000  |         |         |          |         |         |                                     |   |
|                  | Core                            | M0                |         | M3       |         |         | ARM7TDMI |         |         |         |         |         |         |         |         |         |         |         |         |         |         | ARM968E  |         |         | ARM926EJ |         |         |                                     |   |

### Free Driver Libraries, BSPs, and Code Bundles for NXP ARM-based microcontrollers

The free BSPs, drivers and libraries from NXP listed below provide a great starting point for your application development. To access these valuable software resources please visit [www.nxp.com/microcontrollers](http://www.nxp.com/microcontrollers) and look for the software support documents.

| Supplier | Free Driver Libraries and Code Bundles | Supported Devices |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         | Comments   |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               |  |                                  |
|----------|--|-------------------|----------|---------|---------|---------|----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|------------|---------|---------|----------|---------|----------|---------|---------------------------------|---------|---------|--------|--------|--------|---------|-------------------------------|--|----------------------------------|
|          |  | LPC111x           | LPC11C1x | LPC13xx | LPC175x | LPC176x | LPC210x  | LPC211x | LPC212x | LPC219x | LPC213x | LPC214x | LPC215x | LPC221x | LPC222x | LPC229x | LPC236x | LPC237x | LPC238x | LPC242x | LPC245x |            | LPC246x | LPC247x | LPC288x  | LPC291x | LPC292x  | LPC293x | LH754xx                         | LH795xx | LH7A4xx | LPC13x | LPC15x | LPC18x | LPC32xx |                               |  |                                  |
| COREIPM  | COREIPM RTX                            | •                 | •        | •       | •       | •       | •        | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •       | •          | •       | •       |          |         |          |         |                                 |         |         |        |        |        |         |                               | IPMI, GPL2 code for i2c, RS232, flash, RTC |                                  |
| NXP      | LPC313x CDL                            |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         | LPC313x Common Driver Library |  |                                  |
|          | LPC32x0 CDL                            |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | LPC32x0 Common Driver Library              |                                  |
|          | LPC1700 CMSIS                          |                   |          |         | •       | •       |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | ARM CMSIS compliant code for LPC17xx       |                                  |
|          | LPC111x/C1x                            | •                 | •        |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | LPC1100 Code Bundle                        |                                  |
|          | LPC1300                                | •                 |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | LPC1300 Code Bundle                        |                                  |
| NXP      | LPC1700                                |                   |          |         | •       | •       |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | LPC1700 Code Bundle                        |                                  |
|          | LPC213x/LPC214x                        |                   |          |         |         |         |          |         |         |         | •       | •       | •       |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | LPC213x/LPC214x Code Bundle                |                                  |
|          | LPC2300/2400                           |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         | •       | •       | •       | •       | •       | •          | •       |         |          |         |          |         |                                 |         |         |        |        |        |         | LPC23xx/LPC24xx Code Bundle   |  |                                  |
|          | LPC2800                                |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         | •        |         |          |         |                                 |         |         |        |        |        |         |                               | LPC288x Code Bundle                        |                                  |
|          | LPC2900                                |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          | •       | •        | •       |                                 |         |         |        |        |        |         |                               |  | LPC2900 Example Software Package |
|          | LPC3180                                |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        | •      |         |                               | LPC3180 Code Bundle                        |                                  |
|          | LH754xx/SDK75401                       |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          | •       |                                 |         |         |        |        |        |         |                               | LH754xx Board Support Package (BSP)        |                                  |
|          | LH79520/SDK79520                       |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 | •       |         |        |        |        |         |                               | LH79520 Board Support Package (BSP)        |                                  |
|          | LH7952x/SDK79524                       |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 | •       |         |        |        |        |         |                               | LH79524/5 Board Support Package (BSP)      |                                  |
|          | LH7A400/SDK7A400                       |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 | •       |         |        |        |        |         |                               | LH7A400 Board Support Package (BSP)        |                                  |
|          | LH7A400/SDK7A404                       |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 | •       |         |        |        |        |         |                               | LH7A404 Board Support Package (BSP)        |                                  |
|          | Windows CE                             |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | Free WinCE 6.0 BSP from NXP                |                                  |
|          | Linux for LPC32x0                      |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | Free Linux 2.6.34 BSP from NXP             |                                  |
|          | Linux for LPC31xx                      |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | www.linux.com for latest & support         |                                  |
|          | Linux for LH7/LH7A                     |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | Free Linux 2.6.33 BSP from NXP             |                                  |
|          | Linux for LH7/LH7A                     |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | www.linux.com for latest & support         |                                  |
| NXP      | NicheLite for LPC                      |                   |          |         | •       | •       |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | Free Linux 2.6.16 BSP from NXP             |                                  |
| NXP      | NicheLite for LH7                      |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | Free LPC-specific TCP/IP stack             |                                  |
| NXP      | USBHostLite for LPC                    |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | Free LH7-specific TCP/IP stack             |                                  |
| NXP      | USBHostLite for LPC                    |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | Free USB Host Stack w/ MSC driver          |                                  |
| NXP      | CAN driver (AN10674)                   |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | Free USB Host Stack w/ FullCAN mode        |                                  |
| NXP      | SWIM (AN10815)                         |                   |          |         |         |         |          |         |         |         |         |         |         |         |         |         |         |         |         |         |         |            |         |         |          |         |          |         |                                 |         |         |        |        |        |         |                               | Free, simple graphics library from NXP     |                                  |
|          | Family                                 | LPC1000           |          |         |         |         | LPC2000  |         |         |         |         |         |         |         |         |         |         |         |         |         |         | LH7 / LH7A |         |         |          |         | LPC3000  |         |                                 |         |         |        |        |        |         |                               |  |                                  |
|          | Core                                   | M0                |          | M3      |         |         | ARM7TDMI |         |         |         |         |         |         |         |         |         |         |         |         |         |         | ARM968E    |         |         | 1) 2) 3) |         | ARM926EJ |         | 1)ARM7TDMI 2) ARM720T 3)ARM922T |         |         |        |        |        |         |                               |  |                                  |

## Overview of tool support for NXP's ARM-based microcontrollers

| Tool Supplier<br>(in alphabetical order) | Web Site                                | Development Tool Categories |       |                   |                       |                                  |                           |           |               |            |             |                                       |              |                                 |                               |                                  |
|--|---|-----------------------------|-------|-------------------|-----------------------|----------------------------------|---------------------------|-----------|---------------|------------|-------------|---------------------------------------|--------------|---------------------------------|-------------------------------|----------------------------------|
|  |   | Evaluation Boards           | IDE * | C/C++ Compiler ** | Debugging software ** | JTAG debuggers / trace emulators | Flash Programming HW / SW | OS / RTOS | TCP/IP Stacks | USB Stacks | CAN Drivers | Graphics libraries, LCD drivers, GUIs | File Systems | Java application development SW | Software Encryption libraries | NXP ARM-related Training Classes |
| Abatron                                  | www.abatron.ch                          |                             |       |                   |                       | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| Adeneo Embedded                          | www.adeneo-embedded.com                 |                             |       |                   |                       |                                  |                           | •         |               |            |             |                                       |              |                                 |                               |                                  |
| Advantech                                | www.aec.com.tw                          |                             |       |                   |                       |                                  | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| Advin                                    | www.advin.com                           |                             |       |                   |                       |                                  | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| Altium / TASKING                         | www.tasking.com                         |                             | •     | •                 | •                     |                                  |                           |           |               |            |             |                                       |              |                                 |                               |                                  |
| Amontec                                  | www.amontec.com                         |                             | •     | •                 | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| Arium                                    | www.arium.com                           |                             |       |                   | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| ARM                                      | www.arm.com                             |                             | •     | •                 | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| Ashling                                  | www.ashling.com                         |                             | •     | •                 | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| BPM Microsystems                         | www.bpmmicro.com                        |                             |       |                   |                       |                                  | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| Brendes Datentechnik                     | www.brendes.de                          |                             |       |                   |                       | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| BSQUARE                                  | www.bsquare.com                         |                             |       |                   |                       |                                  |                           | •         |               |            |             |                                       |              |                                 |                               |                                  |
| CMX Systems                              | www.cmx.com                             |                             |       |                   |                       |                                  |                           | •         | •             | •          | •           |                                       | •            |                                 |                               |                                  |
| Code Red Technologies                    | www.code-red-tech.com                   | •                           | •     | •                 | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| CodeSourcery                             | www.codesourcery.com                    |                             | •     | •                 | •                     |                                  |                           |           |               |            |             |                                       |              |                                 |                               |                                  |
| Computex                                 | http://www.computex.co.jp/eg/index.html |                             | •     |                   | •                     | •                                |                           |           |               |            |             |                                       |              |                                 |                               |                                  |
| CooCox                                   | www.coocox.org                          |                             | •     |                   | •                     | •                                | •                         | •         |               |            |             |                                       |              |                                 |                               |                                  |
| COREIPM                                  | www.coreipm.com                         | •                           |       |                   |                       |                                  |                           | •         | •             |            |             |                                       |              |                                 | •                             |                                  |
| Cypherbridge Systems                     | www.cypherbridge.com                    |                             |       |                   |                       |                                  |                           |           | •             |            |             |                                       |              |                                 |                               |                                  |
| Data I/O                                 | www.data-io.com                         |                             |       |                   |                       |                                  |                           | •         |               |            |             |                                       |              |                                 |                               |                                  |
| Doulos                                   | www.doulos.com                          |                             |       |                   |                       |                                  |                           |           |               |            |             |                                       |              |                                 |                               | •                                |
| eCosCentric                              | www.ecoscentric.com                     |                             | •     | •                 | •                     |                                  |                           | •         |               |            | •           |                                       |              |                                 |                               |                                  |
| Eltec                                    | www.eltec.sk                            |                             |       |                   |                       |                                  |                           | •         |               |            |             |                                       |              |                                 |                               |                                  |
| Embedded Artists                         | www.embeddedartists.com                 | •                           |       |                   |                       |                                  |                           |           |               |            |             |                                       |              |                                 |                               |                                  |
| Embedded Systems Academy                 | www.esacademy.com                       |                             |       |                   |                       |                                  |                           | •         |               |            |             |                                       |              |                                 |                               |                                  |
| Embest                                   | www.embedinfo.com                       | •                           | •     | •                 | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               | •                                |
| ENEA                                     | www.enea.com                            |                             |       |                   |                       |                                  |                           | •         |               |            |             |                                       |              |                                 |                               |                                  |
| eSysTech                                 | www.esystech.com.br                     | •                           |       |                   |                       |                                  |                           | •         |               |            |             |                                       |              |                                 |                               | •                                |
| Express Logic                            | www.expresslogic.com                    |                             |       |                   |                       |                                  |                           | •         | •             | •          |             |                                       | •            |                                 |                               |                                  |
| FreeRTOS.org                             | www.freertos.org                        |                             |       |                   |                       |                                  |                           | •         |               |            |             |                                       |              |                                 |                               |                                  |
| Future Designs, Inc (FDI)                | www.teamfdi.com                         | •                           |       |                   |                       |                                  |                           | •         |               |            |             |                                       |              |                                 |                               |                                  |
| Garz & Fricke                            | www.garz-fricke.de                      | •                           |       |                   |                       |                                  |                           |           |               |            |             |                                       |              |                                 |                               |                                  |
| GHI electronics                          | www.ghielectronics.com                  | •                           |       |                   |                       |                                  |                           | •         |               |            |             |                                       |              |                                 |                               |                                  |
| Green Hills Software                     | www.ghs.com                             |                             | •     | •                 | •                     | •                                |                           | •         |               |            |             |                                       |              |                                 |                               |                                  |
| HCC-Embedded                             | www.hcc-embedded.com                    |                             |       |                   |                       |                                  |                           |           |               | •          |             |                                       | •            |                                 |                               |                                  |
| Hi-Lo Systems                            | www.hilosystems.com.tw                  |                             |       |                   |                       |                                  |                           | •         |               |            |             |                                       |              |                                 |                               |                                  |
| Hitex Development Tools                  | www.hitex.com                           | •                           | •     | •                 | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               | •                                |
| IAR Systems                              | www.iar.com                             | •                           | •     | •                 | •                     | •                                | •                         | •         | •             | •          |             |                                       | •            |                                 |                               |                                  |
| Ice Technology (Nohau brand)             | www.icetech.com                         | •                           | •     | •                 | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| ImageCraft                               | www.imagecraft.com                      | •                           | •     | •                 | •                     |                                  | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| InterNiche                               | www.iniche.com                          |                             |       |                   |                       |                                  |                           | •         | •             |            |             |                                       |              |                                 |                               | •                                |
| IS2T                                     | www.is2t.com                            |                             | •     |                   | •                     |                                  |                           | •         | •             |            |             |                                       |              | •                               |                               |                                  |

\* OEM or based on Eclipse

\*\* OEM or based on GNU or Eclipse

|  |                          | Development Tool Categories |       |                   |                       |                                  |                           |           |               |            |             |                                       |              |                                 |                               |                                  |
|--|--------------------------|-----------------------------|-------|-------------------|-----------------------|----------------------------------|---------------------------|-----------|---------------|------------|-------------|---------------------------------------|--------------|---------------------------------|-------------------------------|----------------------------------|
| Tool Supplier<br>(in alphabetical order) | Web Site                 | Evaluation Boards           | IDE * | C/C++ Compiler ** | Debugging software ** | JTAG debuggers / trace emulators | Flash Programming HW / SW | OS / RTOS | TCP/IP Stacks | USB Stacks | CAN Drivers | Graphics libraries, LCD drivers, GUIs | File Systems | Java application development SW | Software Encryption libraries | NXP ARM-related Training Classes |
| iSYSTEM                                  | www.isystem.com          | •                           | •     | •                 | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| Jungo                                    | www.jungo.com            |                             |       |                   |                       |                                  |                           |           |               | •          |             |                                       |              |                                 |                               |                                  |
| Keil                                     | www.keil.com             | •                           | •     | •                 | •                     | •                                | •                         | •         | •             | •          | •           |                                       | •            |                                 |                               |                                  |
| LabTools (Mosaico)                       | www.mosaico.com.br       | •                           |       |                   |                       |                                  |                           |           |               |            |             |                                       |              |                                 |                               | •                                |
| Linux - community supported              | www.lpclinux.com         | •                           |       |                   |                       |                                  |                           | •         |               |            |             |                                       |              |                                 |                               |                                  |
| Lauterbach                               | www.lauterbach.com       |                             | •     |                   | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| Leap Electronic                          | www.leap.com.tw          |                             |       |                   |                       |                                  | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| LINPO                                    | www.linposh.com.cn       | •                           |       |                   |                       |                                  |                           |           |               |            |             |                                       |              |                                 |                               |                                  |
| Logic Product Development                | www.logicpd.com          | •                           |       |                   |                       |                                  |                           |           |               |            |             |                                       |              |                                 |                               |                                  |
| Mentor Graphics                          | www.mentor.com           |                             | •     | •                 | •                     | •                                |                           | •         | •             | •          | •           | •                                     | •            |                                 |                               |                                  |
| Micrium                                  | www.micrium.com          |                             |       |                   |                       |                                  |                           | •         | •             | •          |             | •                                     | •            |                                 |                               |                                  |
| Micro Digital                            | www.smxrtos.com          |                             |       |                   |                       |                                  |                           | •         | •             | •          |             |                                       | •            |                                 |                               |                                  |
| Mobiclip (formerly Actimagine)           | www.actimagine.com       |                             |       |                   |                       |                                  |                           |           |               |            |             | •                                     |              |                                 |                               |                                  |
| National Instruments                     | www.ni.com               |                             | •     | •                 | •                     |                                  |                           |           |               |            |             |                                       |              |                                 |                               |                                  |
| NTRU                                     | www.ntru.com             |                             |       |                   |                       |                                  |                           |           |               |            |             |                                       |              |                                 | •                             |                                  |
| Oasis Technologies                       | www.oasistechsol.com     | •                           | •     | •                 | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| Olimex                                   | www.olimex.com           | •                           |       |                   |                       | •                                |                           |           |               |            |             |                                       |              |                                 |                               |                                  |
| OnChip Technologies                      | www.onchiptech.com       |                             |       |                   |                       |                                  |                           |           | •             | •          |             |                                       | •            |                                 |                               |                                  |
| PASAT                                    | www.tinyarm.com          | •                           |       |                   |                       |                                  |                           |           |               |            |             |                                       |              |                                 |                               |                                  |
| PHYTEC                                   | www.phytec.com           | •                           |       |                   |                       |                                  |                           |           |               |            |             |                                       |              |                                 |                               |                                  |
| Phyton                                   | www.phyton.com           | •                           | •     | •                 | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| pls Development Tools                    | www.pls-mc.com           |                             | •     |                   | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| Pumpkin                                  | www.pumpkininc.com       |                             |       |                   |                       |                                  |                           | •         |               |            |             |                                       |              |                                 |                               |                                  |
| Quadros Systems                          | www.quadros.com          |                             |       |                   |                       |                                  |                           | •         | •             | •          | •           |                                       | •            |                                 |                               |                                  |
| Raisonance                               | www.raisonance.com       |                             | •     | •                 | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
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| Rowley Associates                        | www.rowley.co.uk         |                             | •     | •                 | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| SEgger                                   | www.segger.com           |                             |       |                   | •                     | •                                | •                         | •         | •             | •          |             | •                                     | •            |                                 |                               |                                  |
| Sevenstax                                | www.sevenstax.com        |                             |       |                   |                       |                                  |                           |           | •             |            |             |                                       |              |                                 |                               |                                  |
| Signum                                   | www.signum.com           | •                           | •     | •                 | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| SMH Technologies                         | www.smh-tech.com         |                             |       |                   |                       |                                  | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| SPJ Technologies                         | www.spjsystems.com       | •                           | •     | •                 | •                     | •                                | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| Swell Software                           | www.swellsoftware.com    |                             |       |                   |                       |                                  |                           |           |               |            |             | •                                     |              |                                 |                               |                                  |
| System General                           | www.systemgeneral.com    |                             |       |                   |                       |                                  | •                         |           |               |            |             |                                       |              |                                 |                               |                                  |
| Thesycon                                 | www.thesycon.com         |                             |       |                   |                       |                                  |                           |           |               | •          |             |                                       |              |                                 |                               |                                  |
| uCDragon Technology Co.                  | www.ucdragon.cn          | •                           |       |                   |                       | •                                |                           |           |               |            |             |                                       |              |                                 |                               |                                  |
| Wind River                               | www.windriver.com        |                             |       |                   |                       |                                  |                           | •         |               |            |             |                                       |              |                                 |                               |                                  |
| Wittenstein                              | www.wittenstein.de       |                             |       |                   |                       |                                  |                           | •         |               |            |             |                                       |              |                                 |                               |                                  |
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| ZLG                                      | www.zlgmcu.com           | •                           | •     |                   | •                     | •                                | •                         | •         | •             | •          | •           | •                                     | •            |                                 | •                             |                                  |

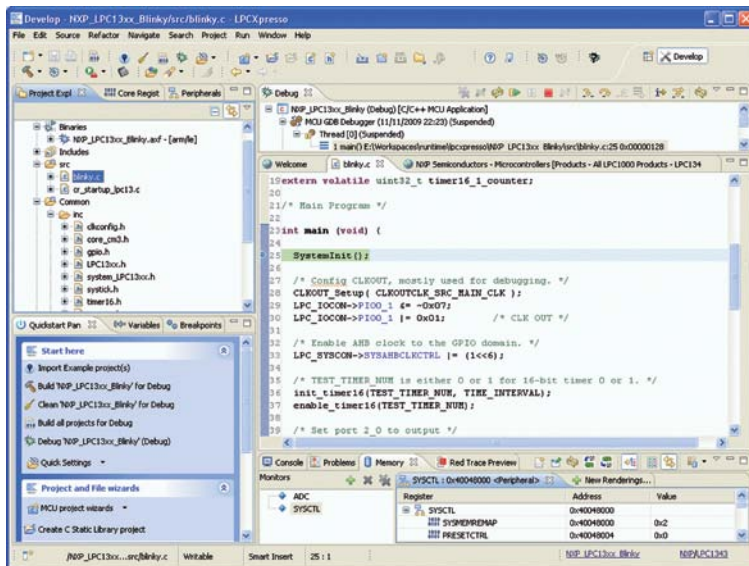
\* OEM or based on Eclipse

\*\* OEM or based on GNU or Eclipse



## LPCXpresso:

LPCXpresso™ is a low-cost development platform available from NXP. It supports NXP's ARM-based LPC microcontrollers. The platform is comprised of a simplified Eclipse-based IDE and low-cost target boards which include an attached JTAG debugger. LPCXpresso is an end-to-end solution enabling embedded engineers to develop their applications from initial evaluation to final production.



## LPCXpresso IDE:

LPCXpresso's IDE is a highly-integrated software development environment for NXP's LPC microcontrollers, which includes all the tools necessary to develop high-quality software solutions in a timely and cost effective manner. LPCXpresso is based on Eclipse with many LPC-specific enhancements. It also features the latest version of the industry standard GNU tool chain with optimized C libraries providing professional quality tools at low cost. The LPCXpresso IDE can build an executable of any size with full code optimization, and it supports a download limit of 128 KB after registration.

## LPC-Link:

The JTAG/SWD debugger portion of an LPCXpresso board is called the LPC-Link™. The LPC-Link is equipped with a 10-pin JTAG header, and it seamlessly interfaces with a target via USB (the USB interface and other debug features are provided by NXP's ARM9 based LPC3154 MCU). Cutting the traces between the LPC-link and the target will make the LPC-Link a stand-alone JTAG debugger. This enables the LPCXpresso platform to be connected to an external target and used to develop for a wide variety of NXP's Cortex-M0, Cortex-M3, and ARM7/9 based applications.

[www.nxp.com/lpcxpresso](http://www.nxp.com/lpcxpresso)





NXP ([www.nxp.com/microcontrollers](http://www.nxp.com/microcontrollers)) offers the complete ARM portfolio consisting of Cortex-MTM, ARM7-, and ARM9-, based microcontrollers. NXP's ARM-based LPC1000, LPC2000, and LPC3000 families include highly integrated peripherals, such as Ethernet, USB (Universal Serial Bus host/device/OTG (On-The-Go)), CAN (controller-area-network), LCD-controller, and many serial-communications peripherals. NXP has the industry's leading Cortex microcontroller solution portfolio.

The ARM Cortex-M0 based devices offer the lowest-priced 32-bit microcontroller solution, bringing higher value and ease of use than existing 8-/16-bit microcontrollers through unprecedented performance, simplicity, low power, and dramatic reductions in code size for all 8-/16-bit applications.

The ARM Cortex-M3 based microcontroller devices feature a high level of integration and low power consumption with system enhancements such as enhanced debug features and a higher level of support block integration.

For more information about NXP tools, evaluation boards, and development support, please visit [www.ics.nxp.com/support/tools/microcontrollers](http://www.ics.nxp.com/support/tools/microcontrollers)

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