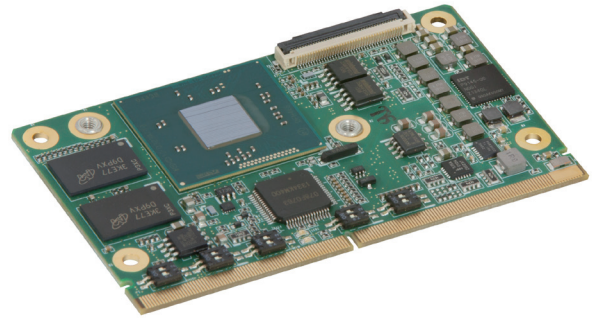


# LEC-BTS

## SMARC® Short Size Module with Intel® Atom™ Processor E3800 Series System-on-Chip

### Features

- Single, dual or quad-core Intel® Atom™ Processor E3800 Series System-on-Chip
- Up to 4 GB DDR3L at 1066/1333 MHz (non-ECC)
- HDMI and LVDS
- GbE, camera interface
- 1x SATA 3Gb/s, 1x USB 3.0, 3x USB 2.0, max. 12x GPIO
- Extreme Rugged™ operating temperature: -40°C to 85°C



### Specifications

#### • Core System

##### CPU

Intel® Atom™ E3800 Series, single, dual or quad-core SoC with integrated graphics  
 Atom™ E3845 (4C/1333), 1.91 GHz, Gfx 542/792 MHz (Turbo), 10 W TDP  
 Atom™ E3826 (2C/1066), 1.46 GHz, Gfx 533/667 MHz (Turbo), 7 W TDP  
 Atom™ E3815 (1C/1066), 1.46 GHz, Gfx 400/-MHz, 5 W TDP

##### Memory

Up to 4 GB DDR3L at 1066/1333 MHz, memory down non-ECC

##### Embedded BIOS

AMI UEFI with CMOS backup in 8 MB SPI BIOS, Fast Boot support

##### Cache

512 kB to 2 MB L2 cache

##### SEMA Board Controller

Supports: Voltage/Current monitoring, Power Sequencing, Logistics and Forensic Information, Flat Panel Control, I²C Bus Control, GPIO Control, User Flash, Failsafe BIOS (dual BIOS), Watchdog Timer and Fan Control

#### • Audio

##### Chipset

Intel® HD Audio integrated in SoC

##### Ports

1x I²S and 1x HDA for audio codec on carrier

#### • Ethernet

##### Intel® MAC/PHY

1x Intel® i210-IT Ethernet controller

##### Interface

10/100/1000 GbE

#### • I/O Interfaces

##### PCIe

3x PCIe x1 Gen2

##### USB

1x USB 3.0 + 3x USB 2.0

##### SATA

1x SATA 3 Gb/s

##### SDIO

1x SDIO (4-bit)

##### Camera

CSI 4L/1L

##### Serial

2x SPI, 2x I2C, 1x I2S, Power Management, 2x UART

##### MMC

1x MMC interface to carrier

##### GPIO

12x GPIO, 5x used for camera, 7x available

#### • Video

##### GPU Feature Support

7th generation Intel® graphics core architecture with four execution units, supports two independent displays 2D and 3D graphics hardware acceleration Support for DirectX 11.1, OGL ES 2.0, OGL 3.2

Video decode HW acceleration for H.264, MPEG2, VC1, VP8 formats

Video encode HW acceleration for H.264, MPEG2 formats

##### LVDS

Single channel 18/24-bit LVDS from DDIO

##### HDMI/DP++

HDMI 1.4a from DDI1

#### • Power

##### Standard Input

3.0 V~5.25 V DC ±5%

##### Power States

C0-C6, S0, S3, S4, S5

- **Mechanical and Environmental**

- **Form Factor**

- SMARC Specifications v1.1

- **Dimension**

- SMARC full size module, 82 mm x 80 mm

- **Operating Temperature**

- Standard: 0°C to +60°C

- Extreme Rugged: -40°C to +85°C

- **Humidity**

- 5-90% RH operating, non-condensing

- 5-95% RH storage (and operating with conformal coating)

- **HALT**

- Thermal Stress, Vibration Stress, Thermal Shock and Combined Test

- **Operation System**

- **Standard Support**

- Linux, VxWorks, Windows 7/8, indows Embedded, Compact 7

- **Extended Support (BSP)**

- QNX, Android

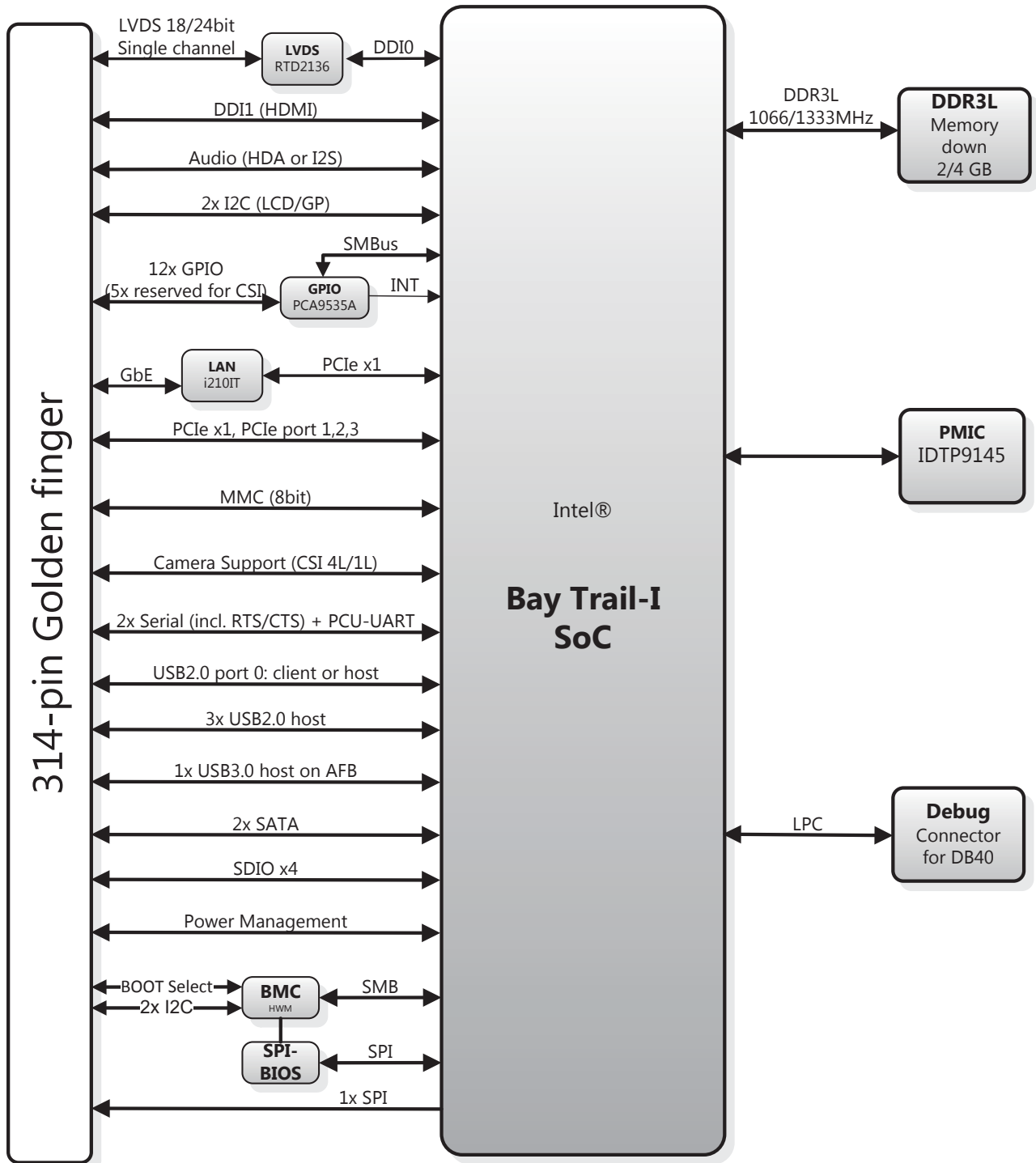
- **Intelligent Middleware**

- **SEMA®**

- Local management, control of embedded computer systems Extended EAPI for monitoring, controlling and analytics applications Multiple OS support and across platforms (x86, ARM)



# Functional Diagram



## Ordering Information

- **LEC-BTS4-2G-ER**  
SMARC Short Size Module with Intel Atom™ E3845, quad core, 2 GB DDR3L, -40°C to +85°C
- **LEC-BTS2-2G-ER**  
SMARC Short Size Module with Intel® Atom™ E3826, dual core, 2 GB DDR3L, -40°C to +85°C
- **LEC-BTS1-2G-ER**  
SMARC Short Size Module with Intel Atom™ E3815, single core, 2 GB DDR3L, -40°C to +85°C
- **LEC-BTS4-4G-ER**  
SMARC Short Size Module with Intel Atom E3845, quad core, 4 GB DDR3L, -45°C to 85°C
- **LEC-BTS20-2G-ER**  
SMARC Short Size Module with Intel Atom E3805, dual core, headless, 2 GB DDR3L, -45°C to 85°C
- **LEC-BTS21-2G-CT**  
SMARC Short Size Module with Intel Celeron N2807, dual core, 2 GB DDR3L, 0°C to 60°C
- **LEC-BTS-HS**  
Heatspreader for LEC-BTS

\*other configurations by request

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