

LPC3250 OEM Board Feature Highlights

The LPC3250 OEM Board provides a quick and easy solution for implementing a high-performance ARM ARM926EJ-S based design around the LPC3250 from NXP.

- Build around NXP's ARM926EJ-S LPC3250 microcontroller with 256Kbyte internal SRAM
- 64MByte external DDR SDRAM, via 16-bit databus
- 128 Mbyte NAND FLASH
- 4 MByte SPI-NOR FLASH
- 100/10Mbps Ethernet interface based on DP83848 ETH-PHY
- On-board ISP1301 USB OTG transceiver
- 13.000 MHz and 32.768 kHz crystals for LPC3250
- 32Kbyte I2C E2PROM for storing non-volatile parameters
- Buffered 16-bit data bus with voltage translation to external bus (VCC_{EXT} can be 1.4-3.6V)
- +3.3V powering
- 200 pos expansion connector (as defined in popular SO-DIMM industry standard), 0.6mm pitch
- Compact design with dimensions: 68 x 50 mm

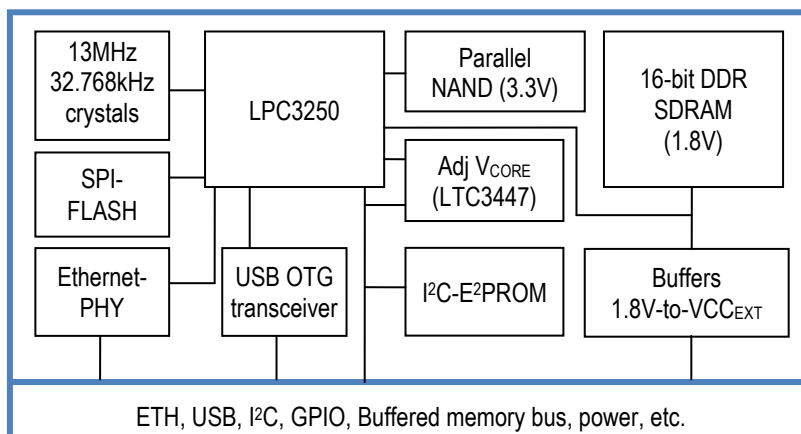


Support Highlights

- Access to Embedded Artists support page containing
 - Schematics
 - User's Manual
 - Sample software applications
 - OEM Board Integration Guide
- Supported by Developer's Kit, see picture to right
- Volume discount available
- Customization service available for optimized high-volume design



Block Diagram of LPC3250 OEM Board



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Embedded Artists is a partner of NXP. Together we give engineers an excellent base to work from when creating advanced embedded systems. We have a close co-operation and know everything there is to know about the NXP processors. Take advantage of our unique knowledge! For further information, please contact: support@EmbeddedArtists.com



Absolute Maximum Ratings

Parameter	Rating
VDD to GND (Supply voltage)	-0.2V to +4V
Digital/Analog Input/Output Voltage	-0.2V to VDD+0.2V
Storage temperature	-40°C to 100°C

Stress above these limits may cause permanent damage to the board.

Technical Data

Parameter	Min	Typical	Max
VCC Supply voltage	3.10V	3.30V	3.50V
Ripple with frequency contents < 100kHz			50mV
Ripple with frequency contents ≥ 100kHz			10mV
VCC _{EXT} Supply voltage	1.40V		3.60V
Supply current			Max observed
- idle, 32kHz RTC active		TBD	
- low-power mode (13 MHz)		TBD	
- executing from internal SRAM (266 MHz)		TBD	
- executing from external SDRAM (266MHz)		TBD	
- Ethernet+usb active		TBD	
VBAT current		TBD	
Operating temperature ^[1]			
- 208 MHz core frequency	0°C		60°C
- 266 MHz core frequency ^[2]	5°C ^[3]		40°C ^[3]
Relative Humidity (RH)			
0°C < T _A ≤ 50°C, non-condensing	5%		80%
50°C < T _A ≤ 60°C, non-condensing	5%		50%
60°C < T _A ≤ 70°C, non-condensing	5%		35%

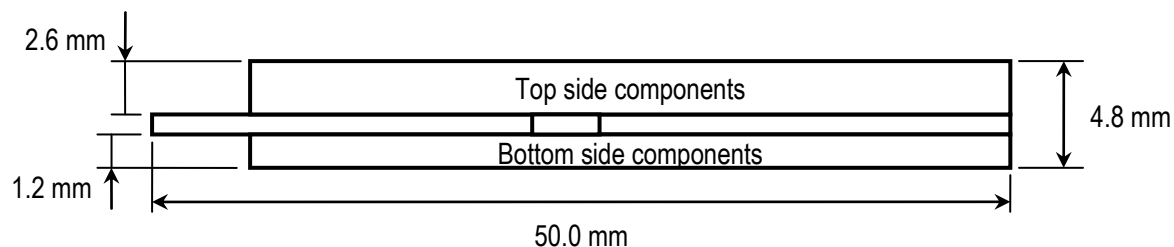
[1] Extended temperature range can be supplied on request. Subject to minimum order volume.

[2] Requires VDD_{core} to be 1.35V.

[3] Temperature range planned to be extended after passing Embedded Artists internal qualification process.

Mechanical Dimensions

Board width according to SO-DIMM standard: 67.6 mm. Board height (top and bottom) according to picture below:



ESD CAUTION

ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features ESD protection damages may occur on devices subjected to high energy ESD. Therefore, proper ESD precaution should be taken to avoid performance degradation or loss of functionality.



Pin Information

Note that each LPC3250 pin can have more functions than indicated in table below. See datasheet for details.

SO-DIMM pins	I/O, Application Details	Connected to
1	A, Ethernet TXP	Ethernet-PHY
2	A, Ethernet RXP	Ethernet-PHY
3	A, Ethernet TXN	Ethernet-PHY
4	A, Ethernet RXN	Ethernet-PHY
5	P, VDD3_3A	
6	P, GND	
7	OD, ETH-LED1	Ethernet-PHY
8	OD, ETH-LED2	Ethernet-PHY
9	P, VBAT-IN	LPC3250, RTC powering
10	O, ONSW	LPC3250, ONSW
11	I, RESET-IN	LPC3250, RESET via buffer
12	O, RESET-OUT	LPC3250, RESOUT
13	I, ETH-PHY-PD	Ethernet-PHY, power down
14	I, DBGEN	LPC3250, dbggen
15	I, TCK	LPC3250, jtag-tck
16	O, RTCK	LPC3250, jtag-rtck
17	I, TRST	LPC3250, jtag-trst
18	I, TMS	LPC3250, jtag-tms
19	I, TDI	LPC3250, jtag-tdi
20	O, TDO	LPC3250, jtag-tdo
21	P, V3A	LPC3250, vdda
22	NC	
23	P, VSSA	LPC3250, vssa
24	P, GND	
25	O, GPO	LPC3250, GPO_10
26	O, GPO	LPC3250, GPO_12
27	O, GPO	LPC3250, GPO_13
28	O, GPO	LPC3250, GPO_15
29	O, GPO	LPC3250, GPO_16
30	O, GPO	LPC3250, GPO_18
31	B, GPIO	LPC3250, P0.2
32	B, GPIO	LPC3250, P0.3
33	B, GPIO	LPC3250, P0.4
34	B, GPIO	LPC3250, P0.5
35	I, GPI	LPC3250, GPI_01
36	I, GPI	LPC3250, U7_HCTS
37	P, VCC	
38	P, GND	
39	P, VCC	
40	P, GND	
41	NC	
42	A, USB2-DP	LPC3250, USB-D+
43	NC	
44	A, USB2-DM	LPC3250, USB-D-
45	O	LPC3250, GPO_06
46	O	LPC3250, PWMOUT2
47	O	LPC3250, U6_IRTX
48	I, GPI	LPC3250, U6_IRRX
49	O	LPC3250, U5_TX
50	I, GPI	LPC3250, U5_RX
51	O, GPO	LPC3250, GPO_02

SO-DIMM pins	I/O, Application Details	Connected to
101	P, GND	
102	P, GND	
103	B	LPC3250, I2S1TX_CLK
104	B	LPC3250, I2S1TX_SDA
105	B	LPC3250, I2S1TX_WS
106	B, GPIO	LPC3250, P0.0
107	B, GPIO	LPC3250, P0.1
108	I, GPI	LPC3250, GPI_00
109	B, I2C-SDA	LPC3250, I2C2_SDA
110	O, I2C-SCL	LPC3250, I2C2_SCL
111	I, GPI	LPC3250, GPI_04
112	I, GPI	LPC3250, GPI_06
113	A	ISP1301, USB_ID
114	I	LPC3250, POWER_ON Vcore
115	O	LPC3250, TST_CLK2
116	B, GPIO	LPC3250, P2.7
117	B, GPIO	LPC3250, GPIO_00
118	B, GPIO	LPC3250, GPIO_01
119	I, GPI	LPC3250, GPI_07
120	B, GPIO	LPC3250, P2.0
121	B, GPIO	LPC3250, P2.1
122	B, GPIO	LPC3250, P2.2
123	B, GPIO	LPC3250, P2.3
124	B, GPIO	LPC3250, P2.4
125	B, GPIO	LPC3250, P2.5
126	B, GPIO	LPC3250, P2.6
127	O, GPO	LPC3250, GPO_07
128	O, GPO	LPC3250, GPO_21
129	P, GND	
130	P, GND	
131	O, Buffered Address bus 15	LPC3250, A15 via buffer
132	O, Buffered CS3	LPC3250, CS3 via buffer
133	O, Buffered Address bus 14	LPC3250, A14 via buffer
134	O, Buffered CS2	LPC3250, CS2 via buffer
135	O, Buffered Address bus 13	LPC3250, A13 via buffer
136	O, Buffered CS1	LPC3250, CS1 via buffer
137	O, Buffered Address bus 12	LPC3250, A12 via buffer
138	O, Buffered CS0	LPC3250, CS0 via buffer
139	O, Buffered Address bus 11	LPC3250, A11 via buffer
140	O, Buffered BLS1	LPC3250, BLS1 via buffer
141	O, Buffered Address bus 10	LPC3250, A10 via buffer
142	O, Buffered BLS0	LPC3250, BLS0 via buffer
143	O, Buffered Address bus 9	LPC3250, A9 via buffer
144	O, Buffered WE	LPC3250, WE via buffer
145	O, Buffered Address bus 8	LPC3250, A8 via buffer
146	O, Buffered OE	LPC3250, OE via buffer
147	O, Buffer Address bus 7	LPC3250, A7 via buffer
148	O, Buffer Address bus 23	LPC3250, A23 via buffer
149	O, Buffer Address bus 6	LPC3250, A6 via buffer
150	O, Buffer Address bus 22	LPC3250, A22 via buffer
151	O, Buffer Address bus 5	LPC3250, A5 via buffer

52	O, GPO	LPC3250, GPO_03
53	O, GPO	LPC3250, GPO_08
54	O, GPO	LPC3250, GPO_09
55	O	LPC3250, PWMOUT1
56	O	LPC3250, HICORE
57	O	LPC3250, U1_TX
58	I, GPI	LPC3250, U1_RX
59	I	ISP1301, USB_VBUS_CTRL
60	O, GPO	LPC3250, GPO_17
61	O, GPO	LPC3250, GPO_20
62	O	LPC3250, SPI1_CLK
63	O, GPO	LPC3250, GPO_04
64	B	LPC3250, SPI1_DATIN
65	B	LPC3250, SPI1_DATIO
66	O, GPO	LPC3250, GPO_05
67	O, GPO	LPC3250, GPO_11
68	A	LPC3250, TS_XP
69	A	LPC3250, TS_YP
70	A	LPC3250, AIN1
71	A	LPC3250, AIN2
72	A	LPC3250, AIN3
73	O, GPO	LPC3250, GPO_00
74	B, I2C-SDA	LPC3250, I2C1_SDA
75	B, I2C-SCL	LPC3250, I2C1_SCL
76	P, GND	
77	P, GND	
78	B	LPC3250, MCICLK
79	B	LPC3250, MCICMD
80	O, GPO	LPC3250, GPO_01
81	B	LPC3250, MCIDAT0
82	B	LPC3250, MCIDAT1
83	B	LPC3250, MCIDAT2
84	B	LPC3250, MCIDAT3
85	B, GPIO	LPC3250, GPIO_05
86	O, GPO	LPC3250, GPO_14
87	I, GPI	LPC3250, GPI_03
88	B, GPI	LPC3250, U7_RX
89	O	LPC3250, U7_TX
90	B, GPIO	LPC3250, P0.6
91	B, GPIO	LPC3250, P0.7
92	O, GPO	LPC3250, GPO_22
93	B	LPC3250, SYSCLKEN
94	B	LPC3250, SPI2_DATIO
95	B, GPI	LPC3250, SPI2_DATIN
96	B, GPIO	LPC3250, GPIO_04
97	B	LPC3250, SPI2_CLK
98	A	ISP1301, USB_VBUS
99	I, GPI	LPC3250, GPI_02
100	O, GPO	LPC3250, GPO_19 connected to NAND flash WP

I/O legend

O: output
I: input
B: Bidirectional
P: Power
A: Analog

152	O, Buffer Address bus 21	LPC3250, A21 via buffer
153	O, Buffer Address bus 4	LPC3250, A4 via buffer
154	O, Buffer Address bus 20	LPC3250, A20 via buffer
155	O, Buffer Address bus 3	LPC3250, A3 via buffer
156	O, Buffer Address bus 19	LPC3250, A19 via buffer
157	O, Buffer Address bus 2	LPC3250, A2 via buffer
158	O, Buffer Address bus 18	LPC3250, A18 via buffer
159	O, Buffer Address bus 1	LPC3250, A1 via buffer
160	O, Buffer Address bus 17	LPC3250, A17 via buffer
161	O, Buffer Address bus 0	LPC3250, A0 via buffer
162	O, Buffer Address bus 16	LPC3250, A16 via buffer
163	NC	
164	I, ABUF_EN	Connected to GND on board
165	P, Buffer-VCC	
166	P, GND	
167	B, Buffer Data bus 15	LPC3250, D15 via buffer
168	I, GPI	LPC3250, GPI_08
169	B, Buffer Data bus 14	LPC3250, D14 via buffer
170	O, GPO	LPC3250, GPO_23
171	B, Buffer Data bus 13	LPC3250, D13 via buffer
172	I, GPI	LPC3250, GPI_09
173	B, Buffer Data bus 12	LPC3250, D12 via buffer
174	I, GPI	LPC3250, GPI_19
175	B, Buffer Data bus 11	LPC3250, D11 via buffer
176	B, GPIO	LPC3250, P2.8
177	B, Buffer Data bus 10	LPC3250, D10 via buffer
178	B, GPIO	LPC3250, P2.9
179	B, Buffer Data bus 9	LPC3250, D9 via buffer
180	B, GPIO	LPC3250, P2.10
181	B, Buffer Data bus 8	LPC3250, D8 via buffer
182	B, GPIO	LPC3250, P2.11
183	B, Buffer Data bus 7	LPC3250, D7 via buffer
184	B, GPIO	LPC3250, P2.12
185	B, Buffer Data bus 6	LPC3250, D6 via buffer
186	I, GPI	LPC3250, GPI_28
187	B, Buffer Data bus 5	LPC3250, D5 via buffer
188	O	LPC3250, U2_TX
189	B, Buffer Data bus 4	LPC3250, D4 via buffer
190	I, GPI	LPC3250, GPI_17
191	B, Buffer Data bus 3	LPC3250, D3 via buffer
192	I, GPI	LPC3250, GPI_05
193	B, Buffer Data bus 2	LPC3250, D2 via buffer
194	I, GPI	LPC3250, GPI_16
195	B, Buffer Data bus 1	LPC3250, D1 via buffer
196	I, GPI	LPC3250, GPI_18
197	B, Buffer Data bus 0	LPC3250, D0 via buffer
198	O	LPC3250, U3_TX
199	P, Buffer-VCC	
200	P, GND	

OD: Open-drain output
GPIO: General purpose I/O
GPI: General purpose input
GPO: General purpose output

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