SOMDIMM-LPC3250

Users Manual

For use with Touch Screen LCD Kit

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Table of Contents

1.	Introduction	1
2.	LPC3250 SOMDIMM Block Diagram	1
3.	Functional Description	2
4.	ESD Warning	2
5.	Requirements	2
6.	SOMDIMM-LPC3250 Power Requirements	2
7.	Setting up the Hardware	3
8.	Board Layout	4
9.	DK-TS-KIT Functional Block Diagram	5
10.	I/O Connector Descriptions	6
J	TAG Connector – P6	6
٨	MicroSD Connector – P1	7
D	Debug Connector – J5	7
11.	On Board Functions	8
E	thernet PHY – U8	8
Ν	MicroSD – J2	8
R	Reset Generator – U3	8
	Serial EEPROM – U2	
12.	200-pin SOMDIMM Connector Details – J4	9
13.	SOMDIMM Installation	12
14.	SOMDIMM Socket Details	12
15.	Mechanical Details	13
16.	Software	14
	Schematics	
18.	Table of Figures	15

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1. Introduction

The SOMDIMM-LPC3250 provides a quick and easy solution for implementing an ARM926EJ-S based design by providing the basic functions necessary for a product on an easy to use SOMDIMM . The SOMDIMM uses an industry standard 200 pin SO-DIMM interface. These sockets are utilized by virtually every laptop on the market.

This SOMDIMM is compatible with FDI's Family of Touch Screen LCD Kits but can also be used for custom platform development or customer applications.

2. LPC3250 SOMDIMM Block Diagram

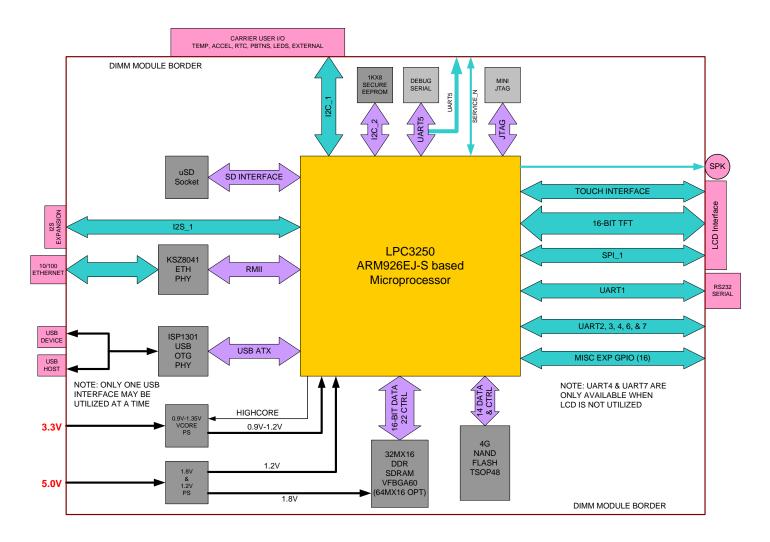


Figure 1 - LPC3250 SOMDIMM Block Diagram

3. Functional Description

SOMDIMM-LPC3250

- LPC3250 ARM926EJ-S based microprocessor
- 64MB* DDR SDRAM (64 mega-bytes)
- 512MB* NAND FLASH (512 mega-bytes)
- 1KB I2C-Serial EEPROM with Access Protection
- 10/100 Ethernet PHY
- Micro SD Card Socket (both SD and SDHC modes supported)
- JTAG
- Debug serial connector (OPTIONAL)
- Power-on Reset Generator
 - * Rev 2 board and later

4. ESD Warning

The DK-TS-KIT shipped in a protective anti-static package. The kit must not be subjected to high electrostatic potentials. Damage may occur to the boards that will not be covered under warranty. General practice for working with static sensitive devices should be followed when working with the DK-TS-KIT.

5. Requirements

The SOMDIMM-LPC3250 requires a carrier board with a 200-pin SO-DIMM socket. The socket should have the key at the 1.8V location (This has nothing to do with operation of the SOMDIMM-LPC3250, it is simply a 'key' in the socket) The SOMDIMM-LPC3250 requires only 3.3V & 5.0V for operation. The CARRIER Board from Future Designs provides this socket and should be utilized to develop your application for initial verification.

Example SO-DIMM Socket Manufacturer and Part Number: TYCO 1473005-4

Please refer to section 10 for the pin out details of the SOMDIMM Edge Finger.

6. SOMDIMM-LPC3250 Power Requirements

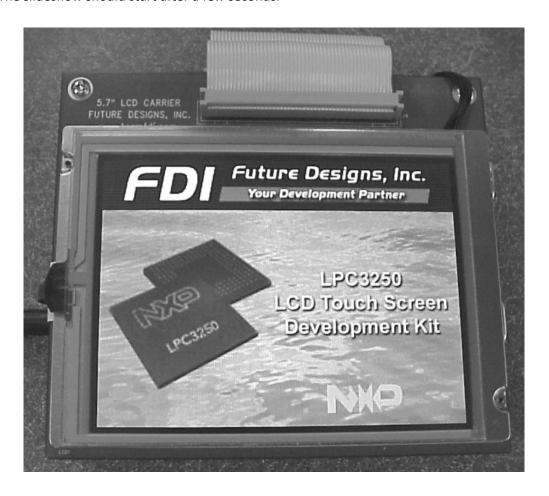
The SOMDIMM-LPC3250 typical power consumption was measured at room temperature, 266MHz core clock rate.

	Voltage	Power On, booting	Linux booted, login prompt	Observed Max
ſ	3.3V	148mA	185mA	333mA
	5V	17mA	2mA	25mA

7. Setting up the Hardware

The following are step by step instructions for setting up the hardware.

- 1) Make sure you have an SOMDIMM-LPC3250 board plugged into the CARRIER board at J1.
- 2) Verify the LCD Interface ribbon cable connects the CARRIER board to the LCD CARRIER (J7) board.
- 3) With the power off, plug the 5V center-positive Power Supply into 5V (P5) of the CARRIER board.
- 4) Connect an RJ-45 Ethernet cable to the ETHERNET (J5) interface of the CARRIER board.
- 5) Plug in a female-to-female DB9 serial cable (included in the DK-TS-KIT) between PC and RS232 (P4)
- 6) Open a serial program on the PC (such as HyperTerminal or PUTTY) and set the serial connection to 115200 baud, 8 bits, 1 stop bit, no parity.
- 7) Insert a flash media drive with the demonstration files (included) into USB HOST (P1).
- 8) Turn on the power. The boot screen will appear showing the board information and FDI logo. After a short time, Tux the Penguin will appear in the upper left as Linux continues to boot.
- 9) If you have a current version of the software, the program will then automatically show a slideshow loaded from the previously inserted flash drive.
- 10) If not, the slideshow can be started by doing the following steps:
 - a. When the login screen appears, enter "root" as the login and "root" as the password.
 - b. At the command prompt type the command, "./usbslides"
 - c. The slideshow should start after a few seconds.



8. Board Layout

The following figures illustrate the layout of the various components of the DK-TS-KIT. They are for reference only and are subject to change.

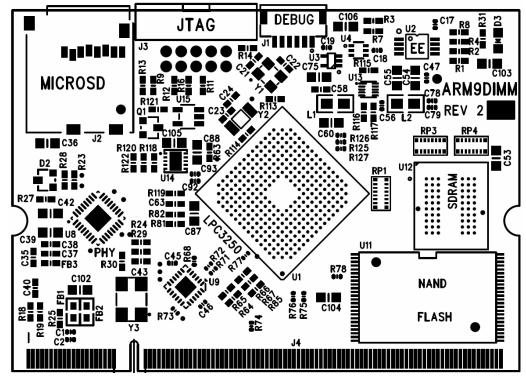


Figure 2 - SOMDIMM-LPC3250 Top Side

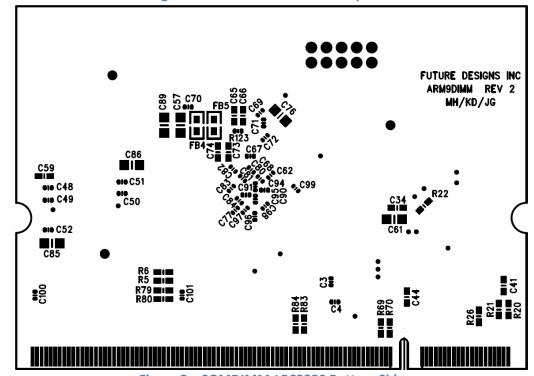


Figure 3 – SOMDIMM-LPC3250 Bottom Side

9. DK-TS-KIT Functional Block Diagram

The DK-TS-KIT Block Diagram is illustrated below.

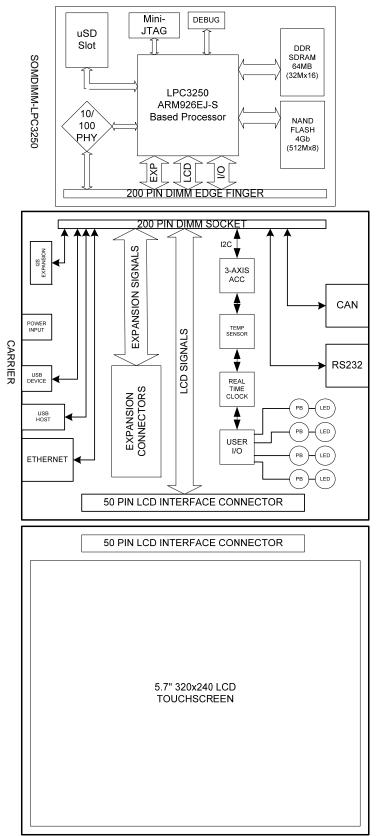


Figure 4 – DK-TS-KIT System Block Diagram

10. I/O Connector Descriptions

JTAG Connector - P6

The SOMDIMM-LPC3250 utilizes a new, reduced size JTAG connector based on a 2mm Header. This smaller connector provides 100% of the functionality of the standard 20-pin large JTAG connector, but utilizes 70% less board space. The connector is a standard part available from most major vendors.

Pin Number	Description
1	3.3V
2	TRSTn
3	TDI
4	TMS
5	ТСК
6	RTCK
7	TDO
8	Reset
9	Ground
10	5.0V

For users that may have existing JTAG debuggers, an adapter may be fabricated using the following wiring diagram: (part numbers for the connectors are included from both the manufacturer and Digi-key)

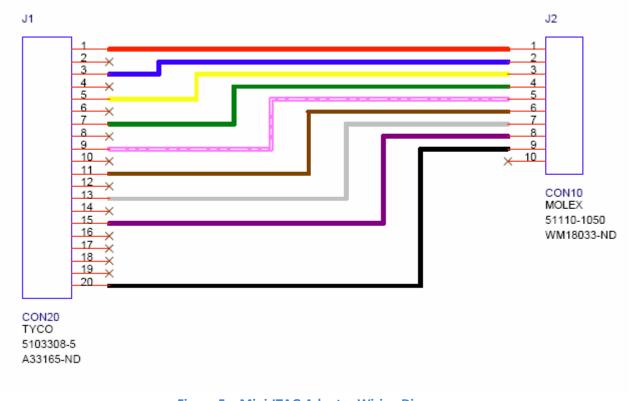


Figure 5 – Mini JTAG Adapter Wiring Diagram

MicroSD Connector - P1

The SOMDIMM-LPC3250 utilizes a MicroSD Socket for flexible mass storage capability. MicroSD Flash Cards are utilized by almost every cell phone on the market and are very cost effective, providing as much as 16GB of user-changeable memory storage. Adapter cards are available (and are usually included with the MicroSD) to facilitate installation of the MicroSD card into a standard SD reader. microSD cards are available in capacities from 64 MB to 16 GB but most cards with sizes over 2GB are only available as SDHC cards. The SOMDIMM-LPC3250 supports both microSD and SDHC formats.

Pin Number	Description
1	MS Data I/O 2
2	MS Data I/O 3
3	MS BS
4	3.3V
5	MS SCLK
6	Ground
7	MS Data I/O 0
8	MS Data I/O 1

Debug Connector – J5

The SOMDIMM-LPC3250 includes an optional debug header that is designed to be utilized as an optional console port. This connector is a 1.5mm JST Male, shrouded connector. The JST Part Number is: SM06B-SHLS-TF.

Pin Number	Description
1	3.3V
2	Reset Input
3	NC
4	Ground
5	UART5 RXD (Input)
6	UART5 TXD (Output)

Note: On SOMDIMM-LPC3250 Rev 2.0 and later, the UART5 signals (RXD & TXD) are also connected to the SOMDIMM edge connector. See the SOMDIMM Connector pinout section for specific details.

11. On Board Functions

Ethernet PHY – U8

The SOMDIMM-LPC3250 provides an Ethernet PHY from Micrel, KSZ8041NL. The KSZ8041NL is a single chip solution for a 100BASE-TX/10BASE-T physical layer transceiver. It has support for media independent interface (MII), reduced MII (RMII), and HP MDI/MDI-X auto crossover. This allows for any standard Ethernet cable to be used, even a crossover cable. The KSZ8041NL is fully compliant to IEEE 802.3u with support for auto-negotiation and manual selection of 10/100Mbps speed as well as full and half-duplex modes.

For detailed information, please refer to the specific data sheet for this device available from the manufacturer.

MicroSD - J2

The SOMDIMM-LPC3250 provides a MicroSD interface for access to a removable Flash memory. Micro Secure Digital cards are one of the lowest prices per capacity memory cards available. They allow the LPC3250 to have access to a much larger amount of Flash memory in a very small form factor. When using a MicroSD card it can be accessed via the SD controller of the LPC3250.

Reset Generator – U3

The SOMDIMM-LPC3250 utilizes a TPS3801 power-on reset supervisor and voltage monitor. The TPS3801 includes an external reset input that is connected to the reset button on the CARRIER Board.

For detailed information, please refer to the specific data sheet for this device available from the manufacturer.

Serial EEPROM - U2

The SOMDIMM-LPC3250 includes a serial EEPROM, NXP PCA24S08. This device provides 1K-Byte of serial electrically erasable and programmable Read-only memory (EEPROM). Data is received and transmitted via the serial I2C bus. Access permissions limiting reads or writes can be set via the I2C-bus to isolate blocks of memory from improper access.

PCA24S08 Device I2C Bus 2 Address = 0xA8

For detailed information, please refer to the specific data sheet for this device available from the manufacturer.

12. 200-pin SOMDIMM Connector Details – J4

Pin	SOMDIMM Signal Name	Application Details	I/O	SOMDIMM Connection Details
1	ETH_TXP	Ethernet Transmit Positive	0	Output from KSZ8041 Ethernet PHY
2	ETH_RXP	Ethernet Receive Positive	I	Output from KSZ8041 Ethernet PHY
3	ETH_TXN	Ethernet Transmit Negative	0	Input to KSZ8041 Ethernet PHY
4	ETH_RXN	Ethernet Receive Negative	ı	Input to KSZ8041 Ethernet PHY
5	3V3A	3.3V Analog	Р	Analog 3.3V Output from PHY Circuit
6	GND	Ground	Р	
7	ETH_LED0	Ethernet LED0	0	Ethernet LED0 output from KSZ8041
8	ETH_LED1	Ethernet LED1	0	Ethernet LED1 output from KSZ8041
9	VBAT_IN	Vdd Battery Input	Р	Vdd for battery backup of internal RTC
10	ALARM	Alarm Signal From Micro	0	
11	RESET_IN	Reset Input	I	Reset input to POR IC TPS3801
12	RESET_OUT	Reset Output from POR	0	Reset output from POR circuit
13	NC	Not connected	U	
14	NC	Not connected	U	
15	NC	Not connected	U	
16	NC	Not connected	U	
17	NC	Not connected	U	
18	NC	Not connected	U	
19	NC	Not connected	U	
20	NC	Not connected	U	ADC Devices Councils
21	VDDA	Vdd Analog	1	ADC Power Supply
22	VREF	Reference Voltage	1	ADC Ground
23	VSSA	Vss Analog	l P	ADC Ground
24 25	GND GPIO25 LCDPWR	Ground LCD Power Enable	0	Connected to LPC3250 Pin E11
26	GPIO25_LCDPWR GPIO26_LCDLE	LCD Power Enable	0	Connected to LPC3250 Pin E11 Connected to LPC3250 Pin B12
27	GPIO26_LCDCLK	LCD Clock	0	
28	GPIO27_LCDCLK GPIO28 LCDFP	ECD Clock	0	Connected to LPC3250 Pin B13 Connected to LPC3250 Pin A14
29	GPIO28_LCDFP GPIO29 LCDENAB		0	Connected to LPC3250 Pin A14 Connected to LPC3250 Pin D10
30	GPIO30_LCDLP		0	Connected to LPC3250 Pin D10 Connected to LPC3250 Pin D11
31	GPIO31 LCDVD4	LCD Data Bit 4	0	Connected to LPC3250 Pin M17
32	GPIO32 LCDVD5	LCD Data Bit 5	0	Connected to LPC3250 Pin M18
33	GPIO33 LCDVD6	LCD Data Bit 6	0	Connected to LPC3250 Pin L15
34	GPIO34 LCDVD7	LCD Data Bit 7	0	Connected to LPC3250 Pin L16
35	GPIO35	GPIO Unused	Ü	Connected to LPC3250 Pin C2 (GPO 19)
36	GPIO36		Ü	Connected to LPC3250 Pin N18 (GPO 17)
37	3.3V	3.3V Power	Р	
38	GND	Ground	Р	
39	3.3V	3.3V Power	Р	
40	GND	Ground	Р	
41	USBH_DP	USB Host Data Positive	В	Connected to ISP1301 Pin 16
42	USBD_DP	USB Device Data Postive	В	Connected to ISP1301 Pin 16
43	USBH_DM	USB Host Data Negative	В	Connected to ISP1301 Pin 15
44	USBD_DM	USB Device Data Negative	В	Connected to ISP1301 Pin 15
45	GPIO45_LCDVD18	LCD Data Bit 18	0	Connected to LPC3250 Pin A16
46	GPIO46_LCDVD19	LCD Data Bit 19	0	Connected to LPC3250 Pin D15
47	GPIO47_RD	GPIO / CAN Receive Data	- 1	Connected to LPC3250 Pin A12 (GPIO_00)
48	GPIO48_TD	GPIO / CAN Transmit Data	0	Connected to LPC3250 Pin B2 (GPO_20)
49	GPIO49	GPIO	В	Connected to LPC3250 Pin D3 (GPO_14)
50	GPIO50	GPIO	В	Connected to LPC3250 Pin E8 (GPIO11))
51	GPIO51_I2SRX_CLK	GPIO / I2S Receive Clock	0	Connected to LPC3250 Pin B5 (PO_0)
52	GPIO52_I2SRX_WS	GPIO / I2S Receive Write Sel	0	Connected to LPC3250 Pin D7 (P0_1)
53	GPIO53_I2SRX_SDA	GPIO / I2S Receive Data	1	Connected to LPC3250 Pin C16 (GPI_00)
54	GPIO54_I2STX_CLK	GPIO / I2S Transmit Clock	0	Connected to LPC3250 Pin A4 (MAT3_0)
55	GPIO55_I2STX_WS	GPIO / I2S Transmit Write Sel	0	Connected to LPC3250 Pin B4 (CAP3_0)
56	GPIO56_I2STX_SDA	GPIO / I2S Transmit Data	В	Connected to LPC3250 Pin E7 (MAT3_1)
57	GPIO57_TXD	GPIO / Serial Transmit Data	0	Connected to LPC3250 Pin K16
58	GPIO58_RXD	GPIO / Serial Receive Data	!	Connected to LPC3250 Pin K15 (GPI_15)
59	GPIO59_USBH_PWRD	GPIO / USB Host Power Detect	1	Connected to LPC3250 Pin B16 (GPI_08)
60	GPIO60_USBD_UPLED	GPIO / USB Device Up LED	0	Connected to LPC3250 Pin D4 (GPO_01)
61	GPIO61_USBD_CON	GPIO / USB Device Connect	0	Connected to LPC3250 Pin D8 (GPO_04)
62	GPIO62_SCK	GPIO / SPI Clock	0	Connected to LPC3250 Pin C9
63	GPIO63_TPCS	GPIO / Touch IC Chip Sel	0	Connected to LPC3250 Pin E9 (GPIO_05)

64	GPIO64 MISO	GPIO / SPI MISO		Connected to LPC3250 Pin C10
65	GPIO65 MOSI	GPIO / SPI MOSI	0	Connected to LPC3250 Pin B9
66	GPIO66 ESDA	GPIO / External I2C SDA	В	Connected to LPC3250 Fin B5
	_			` = '
67	GPIO67_ESCL	GPIO / External I2C SCL	<u> </u>	Connected to LPC3250 Pin A5 (I2C1_SCL)
68	GPIO68_USBH_OVC	GPIO / USB Host Over Current	<u> </u>	Connected to LPC3250 Pin C7 (GPI_06)
69	GPIO69_TPIRQ	GPIO / Touch IC IRQ Input	ı	Connected to LPC3250 Pin E13 (GPI_04)
70	GPIO70_AD0.0	GPIO / AD0 Bit 0	I	Connected to LPC3250 Pin T14
71	GPIO71_AD0.1	GPIO / AD0 Bit 1	I	Connected to LPC3250 Pin U15
72	GPIO72_AD0.2	GPIO / AD0 Bit 2	I	Connected to LPC3250 Pin R13
73	GPIO73_AD0.3	GPIO / ADO Bit 3	_	Connected to LPC3250 Pin U16
74	GPIO74_SDA	GPIO / User IO I2C Bus SDA	В	Connected to LPC3250 Pin B6 (I2C1_SDA)
75	GPIO75_SCL	GPIO / User IO I2C Bus SCL	0	Connected to LPC3250 Pin A5 (I2C1 SCL)
76	GND	Ground	Р	` = '
77	GND	Ground	P	
78	GPIO78 ACC IRQ	GPIO / Accelerometer IRQ	ı	Connected to LPC3250 Pin F4 (GPI 03)
79	GPIO79_SERVICEN (1)	GPI 01 Bit / Service N Select	i	Connected to LPC3250 Pin C15 (GPI_01)
				
80	GPIO80_RTC_IRQ	GPIO / RTC IRQ Input	-	Connected to LPC3250 Pin D13 (GPI_07)
81	NC	Not connected	U	
82	NC	Not connected	U	
83	NC	Not connected	U	
84	NC	Not connected	U	
85	NC	Not connected	U	
86	GPIO86_LED_BR	GPIO / LED Backlight Bright	0	Connected to LPC3250 Pin D14 (PWM_OUT1)
87	GPIO87 USBH PPWR	GPIO / USB Host Power Ctl	0	Connected to ISP1301 Pin 1 (ADR/PSW)
88	GPIO88 LCDVD10	LCD Data Bit 10	0	Connected to LPC3250 Pin E17
89	GPIO89 LCDVD11	LCD Data Bit 11	0	Connected to LPC3250 Pin E18
90	GPIO90 LCDVD12	LCD Data Bit 12	0	Connected to LPC3250 Pin L17
91	GPIO91 LCDVD13	LCD Data Bit 13	0	Connected to LPC3250 Pin L18
92	GPIO92 LCDVD14	LCD Data Bit 13	0	Connected to LPC3250 Fin E10
93	_		0	
	GPIO93_LCDVD15	LCD Data Bit 15	_	Connected to LPC3250 Pin G17
94	GPIO94_LCDVD20	LCD Data Bit 16	0	Connected to LPC3250 Pin A9
95	GPIO95_LCDVD21	LCD Data Bit 17	0	Connected to LPC3250 Pin A10
96	GPIO96_LCDVD22	LCD Data Bit 22	0	Connected to LPC3250 Pin B11
97	GPIO97_LCDVD23	LCD Data Bit 23	0	Connected to LPC3250 Pin B10
98	GPIO98_USBD_VBUS	USB Device VBus Sense Input	I	Connected to LPC3250 Pin C14 (GPI_02)
98 99	GPIO98_USBD_VBUS GPIO99_AD0.5	USB Device VBus Sense Input Not connected	l I	Connected to LPC3250 Pin C14 (GPI_02)
				Connected to LPC3250 Pin C14 (GPI_02) Connected to LPC3250 Pin J4 (P1_23)
99	GPIO99_AD0.5	Not connected	I	,
99 100	GPIO99_AD0.5 GPIO100	Not connected GPIO	l B	,
99 100 101 102	GPIO99_AD0.5 GPIO100 GND GND	Not connected GPIO Ground Ground	I B P	,
99 100 101 102 103	GPIO99_AD0.5 GPIO100 GND GND NC	Not connected GPIO Ground Ground Not connected	I B P P	,
99 100 101 102 103 104	GPIO99_AD0.5 GPIO100 GND GND NC	Not connected GPIO Ground Ground Not connected Not connected	I B P P U	,
99 100 101 102 103 104 105	GPIO99_AD0.5 GPIO100 GND GND NC NC NC	Not connected GPIO Ground Ground Not connected Not connected Not connected	I B P P U U	· <u>-</u> ,
99 100 101 102 103 104 105 106	GPIO99_AD0.5 GPIO100 GND GND NC NC NC NC	Not connected GPIO Ground Ground Not connected Not connected Not connected Not connected Not connected	I B P P U U U	· <u>-</u> ,
99 100 101 102 103 104 105 106 107	GPIO99_AD0.5 GPIO100 GND GND NC NC NC NC NC NC NC	Not connected GPIO Ground Ground Not connected	I B P P U U U	,
99 100 101 102 103 104 105 106 107	GPIO99_AD0.5 GPIO100 GND GND NC	Not connected GPIO Ground Ground Not connected	I	· <u>-</u> ,
99 100 101 102 103 104 105 106 107 108	GPIO99_AD0.5 GPIO100 GND GND NC NC NC NC NC NC NC NC NC	Not connected GPIO Ground Ground Not connected	I	· <u>-</u> ,
99 100 101 102 103 104 105 106 107 108 109	GPIO99_AD0.5 GPIO100 GND NC NC NC NC NC NC NC NC NC	Not connected GPIO Ground Ground Not connected	I	· <u>-</u> ,
99 100 101 102 103 104 105 106 107 108	GPIO99_AD0.5 GPIO100 GND NC NC NC NC NC NC NC NC NC	Not connected GPIO Ground Ground Not connected	I	,
99 100 101 102 103 104 105 106 107 108 109	GPIO99_AD0.5 GPIO100 GND NC NC NC NC NC NC NC NC NC	Not connected GPIO Ground Ground Not connected	I	· <u>-</u> ,
99 100 101 102 103 104 105 106 107 108 109 110	GPIO99_AD0.5 GPIO100 GND NC NC NC NC NC NC NC NC NC	Not connected GPIO Ground Ground Not connected	I	· <u>-</u> ,
99 100 101 102 103 104 105 106 107 108 109 110 111	GPIO99_AD0.5 GPIO100 GND GND NC NC NC NC NC NC NC NC NC	Not connected GPIO Ground Ground Not connected	I	· <u>-</u> ,
99 100 101 102 103 104 105 106 107 108 109 110 111 111	GPIO99_AD0.5 GPIO100 GND NC NC NC NC NC NC NC NC NC	Not connected GPIO Ground Ground Not connected	I	· <u>-</u> ,
99 100 101 102 103 104 105 106 107 108 109 110 111 112 113	GPIO99_AD0.5 GPIO100 GND GND NC	Not connected GPIO Ground Ground Not connected Solv Power 5.0V Power	I	Connected to LPC3250 Pin J4 (P1_23)
99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115	GPIO99_AD0.5 GPIO100 GND NC NC NC NC NC NC NC NC NC	Not connected GPIO Ground Ground Not connected Sour connected Not connected Sov Power Sov Power Not connected GPIO	I	Connected to LPC3250 Pin J4 (P1_23) Connected to LPC3250 Pin J3 (P1_22)
99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116	GPIO99_AD0.5 GPIO100 GND GND NC	Not connected GPIO Ground Ground Not connected Sour connected Not connected Sour Power Sour Power Sour Connected GPIO GPIO	I	Connected to LPC3250 Pin J4 (P1_23) Connected to LPC3250 Pin J3 (P1_22) Connected to LPC3250 Pin J3 (P1_21)
99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117	GPIO99_AD0.5 GPIO100 GND GND NC	Not connected GPIO Ground Ground Not connected Sour connected Not connected Not connected Not connected Not connected Not connected Sour Power Sour Power Sour Power Sour Power GPIO GPIO	I	Connected to LPC3250 Pin J4 (P1_23) Connected to LPC3250 Pin J3 (P1_22) Connected to LPC3250 Pin J3 (P1_21) Connected to LPC3250 Pin J1 (P1_20)
99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118	GPIO99_AD0.5 GPIO100 GND GND NC	Not connected GPIO Ground Ground Not connected Solv connected Not connected Not connected Not connected Not connected Not connected GPIO GPIO GPIO	I	Connected to LPC3250 Pin J4 (P1_23) Connected to LPC3250 Pin J3 (P1_22) Connected to LPC3250 Pin J3 (P1_21) Connected to LPC3250 Pin J1 (P1_20) Connected to LPC3250 Pin K1 (P1_19)
99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120	GPIO99_AD0.5 GPIO100 GND GND NC	Not connected GPIO Ground Ground Not connected Solv connected Not connected Not connected Not connected Not connected Not connected GNOT connected Solv Power Solv Power Not connected GPIO GPIO GPIO GPIO	I	Connected to LPC3250 Pin J4 (P1_23) Connected to LPC3250 Pin J3 (P1_22) Connected to LPC3250 Pin J3 (P1_21) Connected to LPC3250 Pin J1 (P1_20) Connected to LPC3250 Pin K1 (P1_19) Connected to LPC3250 Pin K2 (P1_18)
99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121	GPIO99_AD0.5 GPIO100 GND GND NC	Not connected GPIO Ground Ground Not connected Solv connected Not connected Not connected Not connected Not connected Not connected GPIO GPIO GPIO GPIO GPIO GPIO	I	Connected to LPC3250 Pin J4 (P1_23) Connected to LPC3250 Pin J3 (P1_22) Connected to LPC3250 Pin J3 (P1_21) Connected to LPC3250 Pin J2 (P1_21) Connected to LPC3250 Pin J1 (P1_20) Connected to LPC3250 Pin K1 (P1_19) Connected to LPC3250 Pin K2 (P1_18) Connected to LPC3250 Pin K4 (P1_17)
99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121	GPIO99_AD0.5 GPIO100 GND GND NC	Not connected GPIO Ground Ground Not connected Solv Power Solv Power Not connected GPIO GPIO GPIO GPIO GPIO GPIO GPIO GPIO	I	Connected to LPC3250 Pin J4 (P1_23) Connected to LPC3250 Pin J3 (P1_22) Connected to LPC3250 Pin J3 (P1_21) Connected to LPC3250 Pin J1 (P1_20) Connected to LPC3250 Pin J1 (P1_19) Connected to LPC3250 Pin K1 (P1_19) Connected to LPC3250 Pin K2 (P1_18) Connected to LPC3250 Pin K3 (P1_17) Connected to LPC3250 Pin K3 (P1_16)
99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121	GPIO99_AD0.5 GPIO100 GND GND NC	Not connected GPIO Ground Ground Not connected Solv connected Not connected Not connected Not connected Not connected Not connected GPIO GPIO GPIO GPIO GPIO GPIO	I	Connected to LPC3250 Pin J4 (P1_23) Connected to LPC3250 Pin J3 (P1_22) Connected to LPC3250 Pin J3 (P1_21) Connected to LPC3250 Pin J2 (P1_21) Connected to LPC3250 Pin J1 (P1_20) Connected to LPC3250 Pin K1 (P1_19) Connected to LPC3250 Pin K2 (P1_18) Connected to LPC3250 Pin K4 (P1_17)
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133		III		Not connected	NC	131
134						
135				Not connected		
136		Unused		Not connected		
137 NC		Unused	U	Not connected	NC	135
138 GPIO138_UE_RX 15		Unused	U	Not connected	NC	136
138 GPIO138_UE_RX 15		Unused	U	Not connected	NC	137
139 GPIC139_U5_TX 19						
140 NC						
141 NC						
142 GPIO142_U4_RX_PX_PX_PX_PX_PX_PX_PX_PX_PX_PX_PX_PX_PX				1		
143		Unused	U	Not connected		
144		Connected to LPC3250 Pin B15	I	UART4 Receive Data	GPIO142_U4_RX (1), (2)	142
145 GPIO145_U3_RX (1)		Unused	U	Not connected	NC	143
145 GPIO145 U3 RX II		Unused	U	Not connected	NC	144
146 GPIO146_U3_TX (1)		Connected to LPC3250 Pin I14	1		GPIO145 113 RX ⁽¹⁾	145
147				1		
148						
149 GPIO149_U2_RX (1)				1		
150 GPIO150_U2_TX UART2 Transmit Data O Connected to LPC3250 Pin K17				1		
151 GPIO151_U5_RX (1).(13)		Connected to LPC3250 Pin K18	ı	UART2 Receive Data		149
152 GPIO152_US_TX (1), (3) UART5 Transmit Data O Connected to LPC3250 Pin H15 153 NC Not connected U Unused 154 NC Not connected U Unused 155 NC Not connected U Unused 156 NC Not connected U Unused 157 NC Not connected U Unused 158 NC Not connected U Unused 159 NC Not connected U Unused 159 NC Not connected U Unused 160 NC Not connected U Unused 161 NC Not connected U Unused 162 NC Not connected U Unused 163 GND Ground P 164 GND Ground P 166 GND Ground P 167 NC Not connected U Unused 168 NC Not connected U Unused 169 NC Not connected U Unused 160 NO Unused 161 NO Unused U Unused 162 NO Unused U Unused 163 ORD ORD ORD 164 GND ORD ORD ORD 165 ORD ORD ORD 166 GND ORD ORD ORD 167 NC Not connected U Unused 168 NC Not connected U Unused 169 NC Not connected U Unused 170 NC Not connected U Unused 171 NC Not connected U Unused 172 NC Not connected U Unused 173 NC Not connected U Unused 174 NC Not connected U Unused 175 NC Not connected U Unused 176 NC Not connected U Unused 177 NC Not connected U Unused 178 NC Not connected U Unused 179 NC Not connected U Unused 170 Unused U Unused 171 NC Not connected U Unused 172 NC NOT connected U Unused 173		Connected to LPC3250 Pin K17	0	UART2 Transmit Data		150
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179 NC Not connected U Unused		Unused	U	Not connected		177
		Unused	U	Not connected	NC	178
		Unused	U	Not connected	NC	179
		Unused	U	Not connected	NC	180
181 NC Not connected U Unused				1		
182 NC Not connected U Unused						
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184 NC Not connected U Unused				Not connected		184
185 NC Not connected U Unused		Unused	U	Not connected	NC	185
186 NC Not connected U Unused		Unused	U	Not connected	NC	186
187 NC Not connected U Unused		Unused	U	Not connected	NC	187
188 NC Not connected U Unused				1		
				1		
190 NC Not connected U Unused				1		
191 NC Not connected U Unused		Unused		Not connected		191
192 NC Not connected U Unused		Unused	U	Not connected	NC	192
193 NC Not connected U Unused		Unused	U	Not connected	NC	193
194 NC Not connected U Unused				1		
195 NC Not connected U Unused						
				1		
196 NC Not connected U Unused						
107 NC	ı	Unused	U	Not connected	NC	197

198	NC	Not connected	U	Unused
199	3.3V	3.3V Power	Р	
200	GND	Ground	Р	

Notes:

- (1) Revision 2.0 s and later only
- (2) UART4 TX is located on multi-use pin GPIO128 LCDVD3 and is only available when an LCD is not utilized.
- (3) UART5 is also connected to the Debug Connector, J1

13. **SOMDIMM Installation**

The SOMDIMM-LPC3250 should be inserted into the SOMDIMM Socket as shown below and then locked into place by pushing down to the Carrier Board. Ensure the SOMDIMM is inserted completely into the socket prior to locking. The socket utilized on the CARRIER Board is rated for a minimum of 25 insertions.

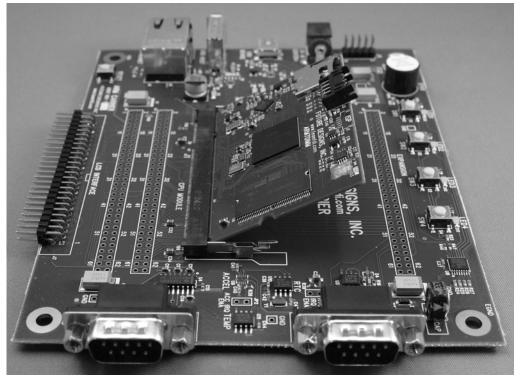


Figure 6 – SOMDIMM Insertion

14. **SOMDIMM Socket Details**

The SOMDIMM-LPC3250 is designed to be used with a standard 200-pin DDR2 SO-DIMM Socket connector. An example connector part is as follows: Mfg: Tyco (AMP), Part Number: 1473005-4.

15. Mechanical Details

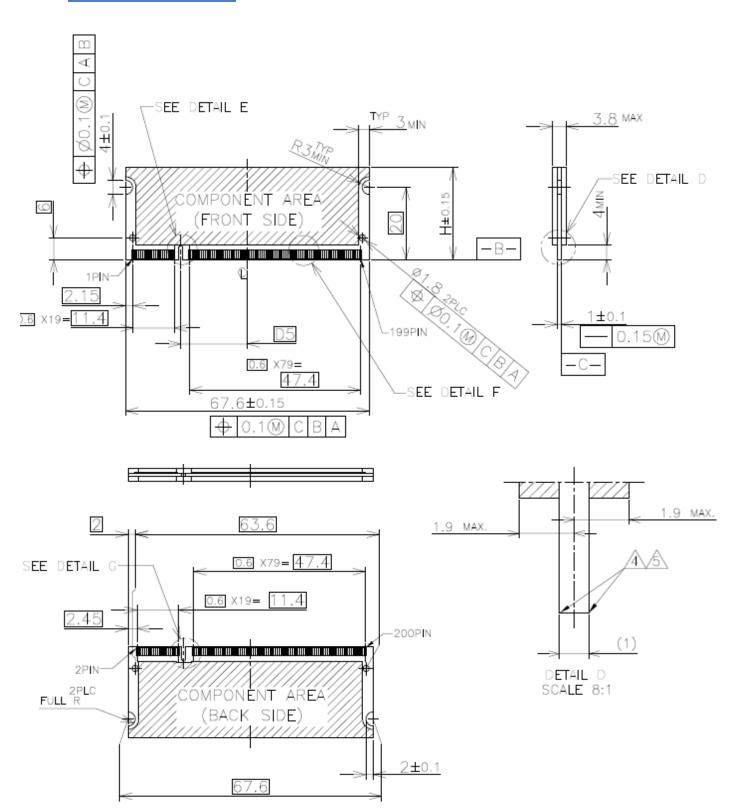


Figure 7 – SOMDIMM-LPC3250 Mechanical Details

16. Software

Below is a list of the software included with the SOMDIMM-LPC3250 or DK-TS-KIT.

- Primary Bootloader (brings up system, configures memory and system clocks, loads U-boot)
 - o 266 MHz
 - o SDRAM configuration
 - o NAND configuration
- U-Boot (Loads Linux, provides TFTP, upgrades Linux)
 - o Serial EEPROM with configuration
- Linux Kernel
 - LPC3250 Processor (w/VFP support, enabled caches)
 - o QVGA TFT LCD (320x240) w/frame buffer
 - o Touch Screen
 - 10/100 Ethernet (TCP/IP)
 - Serial Port (both high speed port and optional debug UART)
 - MicroSD Support via SD Interface (Both SD & SDHC modes supported)
 - USB Host (Mass Storage, HID, etc.)
 - USB Device (via OTG and USB Linux Gadgets)
 - o I2C Bus and Peripherals
 - GPIO for buttons and LEDs
 - RTC with SuperCap backup
 - 3-axis Digital Accelerometer
 - Temperature Sensor
 - o GPIO library
 - Speaker (piezo for beeps and tones)
 - o JFFS2 (using unused MTD NAND memory, approx 16MB)
 - o File Systems (FAT16, VFAT, EXT2)
 - o WDT
- Release format
 - o Patch files for Linux and U-Boot
 - o LTIB compatible release (via Bitshrine.org)

Detailed software information may be included in a separate document or you can download the latest details from our website at www.teamfdi.com/DK-TS-KIT

17. Schematics

Please see the website at:

http://www.teamfdi.com/SOMDIMM-LPC3250/index.html

18. <u>Table of Figures</u>

Figure 1 – LPC3250 SOMDIMM Block Diagram	1
Figure 2 – SOMDIMM-LPC3250 Top Side	4
Figure 3 – SOMDIMM-LPC3250 Bottom Side	4
Figure 4 – DK-TS-KIT System Block Diagram	
Figure 5 – Mini JTAG Adapter Wiring Diagram	6
Figure 6 – SOMDIMM Insertion	12
Figure 7 – SOMDIMM-LPC3250 Mechanical Details	