



OMAP35x Torpedo SOM and DM3730/AM3703 Torpedo SOM to DM3730/AM3703 Torpedo + Wireless SOM Migration

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Abstract

This application note describes the differences between the OMAP35x Torpedo SOM and the DM3730/AM3703 Torpedo SOM as compared to the DM3730/AM3703 Torpedo + Wireless SOM.

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Revision History

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A	RAH	-Initial release	NJK, MB	10/19/11
B	SO, RAH	-Table 3.4: Corrected J1 connector to pin 88 for the OMAP35x Torpedo SOM CONFIG3(MCSPI1_CS3) signal and the DM3730/AM3703 Torpedo + Wireless SOM CONFIG3(MCSPI3_CLK) signal; -Section 6.1: Added paragraph three regarding minimum pin configuration in LogicLoader v2.5	SO	03/05/12
C	SO	-Throughout: Added language for AM3703 configuration of the Torpedo + Wireless SOM	SO	06/14/12
D	SO, RAH	-Table 2.1: Updated available BSPs for DM3730/AM3703 Torpedo SOM; -Table 3.4: Corrected pin number for MCSPI3_SIMO from 93 to 92; -Table 4.1 Corrected pin number for MCSPI3_SIMO from 93 to 92; -Added Section 5 regarding baseboard differences; -Section 6.2: Added links for Android Gingerbread 2.3.4 BSP release notes and user guide; changed Linux kernel version to 3.0; -Section 6.3: Added links for Linux BSP release notes and user guide	BSB	11/08/12

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1 Introduction

This application note describes the differences of both the OMAP35x Torpedo SOM and the DM3730/AM3703 Torpedo SOM as compared to the DM3730/AM3703 Torpedo + Wireless SOM. The primary audience for this document is customers who currently use the OMAP35x Torpedo SOM or the DM3730/AM3703 Torpedo SOM in their design and are considering transitioning to the newer DM3730/AM3703 Torpedo + Wireless SOM.

1.1 Scope of Document

Although this document addresses the differences between the two Torpedo SOMs and the DM3730/AM3703 Torpedo + Wireless SOM, it is meant to be a high-level perspective. When it comes to designing in the DM3730/AM3703 Torpedo + Wireless SOM, please review the appropriate schematics, hardware design files, and other applicable documentation specific to the product. These documents are available on the [DM3730 Torpedo Development Kit downloads page](#).¹

2 Features Comparison

This section gives a general feature set description of both Torpedo SOM modules and the DM3730/AM3703 Torpedo + Wireless SOM module. For more detailed information about the physical specification requirements of each product, please refer to the appropriate hardware specification.

- [OMAP35x Torpedo SOM Hardware Specification](#)²
- [DM3730/AM3703 Torpedo SOM Hardware Specification](#)³
- [DM3730/AM3703 Torpedo + Wireless SOM Hardware Specification](#)⁴

Table 2.1: Features Comparison

Feature	OMAP35x Torpedo SOM	DM3730/AM3703 Torpedo SOM	DM3730/AM3703 Torpedo + Wireless SOM	Notes
Size	15 x 27 x 3.8 mm	15 x 27 x 3.8 mm	15 x 33 x 3.8 mm	—
LogicLoader Version	LogicLoader v2.4	LogicLoader v2.5	LogicLoader v2.5	—
Available OS BSPs	Linux kernel 2.6.32; Windows CE 6.0	Android Gingerbread 2.3.4; Linux kernel 3.0; Windows CE 6.0	Android Gingerbread 2.3.4; Linux kernel 3.0	—
Temperature Ranges	Commercial temp; Industrial temp	Commercial temp; Industrial temp	Commercial temp; Industrial temp	—
ARM Core	ARM Cortex-A8	ARM Cortex-A8	ARM Cortex-A8	—
ARM Core Max Speed (MHz)	600*	1000	1000	*720 MHz OMAP35x processor is available for custom configurations
DSP Core	TMS320C64x+ (OMAP3530 only)	TMS320C64x+ (DM3730 only)	TMS320C64x+ (DM3730 only)	—

¹ <http://support.logicpd.com/auth/downloads/DM3730-AM3703-Torpedo/>

² <http://support.logicpd.com/downloads/1196/>

³ <http://support.logicpd.com/downloads/1432/>

⁴ <http://support.logicpd.com/downloads/1479/>

Feature	OMAP35x Torpedo SOM	DM3730/AM3703 Torpedo SOM	DM3730/AM3703 Torpedo + Wireless SOM	Notes
DSP Core Max Speed (MHz)	430* (OMAP3530 only)	800 (DM3730 only)	800 (DM3730 only)	*520 MHz DSP core is available for custom configurations
Mobile DDR SDRAM (MB)	128*/256	256	256	*128 MB at commercial temp
NAND Flash (MB)	256*/512	512	512	*256 MB at commercial temp
SD/MMC	8-bit available on MMC1	8-bit mode de-featured	8-bit mode de-featured	Development kit uses 4-bit mode
UART4	Not available	gpmc_wait3/uart4_rx only	gpmc_wait3/uart4_rx only	UART4 TX line not available
All other peripherals remain the same				

3 Migration from the OMAP35x Torpedo SOM

3.1 Electrical Comparison

3.1.1 Signal Differences

3.1.1.1 LCD Signals

The higher-order LCD data signals, LCD_D18 through LCD_D23, are now driven from the SYS_BOOT signals on the DM3730/AM3703 Torpedo + Wireless SOM. If these signals are used as inputs, they must be floated during the reset sequence or the boot sequence will not be correctly executed. LCD_D18 and SYS_BOOT0 are now the same signal, as are signals LCD_D22 and SYS_BOOT5. These signals can no longer be used as two separate inputs/outputs.

LCD_D0 through LCD_D5 are now connected to the DM3730 processor where signals LCD_D18 through LCD_D23 were previously connected. Software must note this change and adjust the pin mux accordingly.

LCD_D2 through LCD_D5, LCD_D10, and LCD_D11 are no longer dedicated signals. Instead, they are default signals provided on CONFIG20 through CONFIG25. The alternate population provides access to the DSI interface.

NOTE: The above changes do not affect the order of the signals as they are available on expansion connectors J1 and J2. For example, LCD_D0 is still in the same connector location on both the OMAP35x Torpedo SOM and the DM3730/AM3703 Torpedo + Wireless SOM; the only change is the pin of the processor that drives that signal.

3.1.1.2 Configuration Resistor Change

The LCD interface on the DM3730/AM3703 Torpedo + Wireless SOM now defaults to 24-bits available. R86 is now the default population instead of R87.

The default processor signals connected to CONFIG1 and CONFIG3 are different between the DM3730/AM3703 Torpedo + Wireless SOM and the OMAP35x Torpedo SOM. CONFIG0 is now dedicated to LCD_D16 and CONFIG1 is now dedicated to LCD_23. MCSPI1_CS3 has been replaced with MCSPI3_CLK.

3.1.1.3 SD/MMC1 Signals

On the DM3730/AM3703 Torpedo + Wireless SOM, SD/MMC1 signals only support 4-bit mode. Signals SD1_DATA4 through SD1_DATA7 are no longer supported. Instead, CSI_FLD and uP_GPIO_127 through uP_GPIO_129 are connected to J2.

3.1.1.4 SD/MMC3 Signals

On the DM3730/AM3703 Torpedo + Wireless SOM, optional SD/MMC3 signals are no longer available on CONFIG20 through CONFIG23. These signals are now used for interfacing to the wireless module. Instead, McSPI3 signals are directly connected to J1. CONFIG20 through CONFIG23 are now used to choose between LCD and DSI interfaces.

Also, optional SD/MMC3 signals are no longer available on CONFIG0 and CONFIG2. These signals are now used for interfacing to the wireless module. Instead, LCD_D16 and LCD_D23 are directly connected to J1.

3.1.1.5 TV Out

TV out is not supported on the DM3730/AM3703 Torpedo + Wireless SOM. TV_OUT2 and TV_OUT1 are no longer connected to J2. GPS_PPS_OUT and BT_EN replace them.

3.1.1.6 CSI2 Signals

CSI2_DX0, CSI2_DY0, CSI2_DX1 and CSI2_DY1 are now available through resistor-population options on J2.19 through J2.25. These pins were previously +5V signals used for battery charging.

3.1.1.7 Additional Camera GPI Only Signals

With the new camera configuration in the DM3730/AM3703 Torpedo + Wireless SOM, the signals listed below are now additional input-only signals. Systems using these signals as outputs will need a redesign.

Table 3.1: DM3730/AM3703 Torpedo + Wireless SOM Additional GPI Only Signals

GPI Signal	SOM Signal	SOM Pin
gpio_105	CSI_D6/CONFIG14	J2.57
gpio_106	CSI_D7/CONFIG15	J2.55
gpio_107 ¹	CSI_D8/CONFIG10	J1.78
gpio_108 ¹	CSI_D9/CONFIG11	J1.76

TABLE NOTES:

1. This signal is not available on standard DM3730/AM3703 Torpedo + Wireless SOMs; it is only available if R91 is populated in place of R90.

3.1.1.8 Product Identification Resistor

A 4.7K resistor, R136, has been placed on HSUSB0_D6 as a pull-down. This is used for product identification in software and has no functional effect.

3.1.1.9 Buffer Strength

The OMAP35x Torpedo SOM recommended series termination resistors for gpio_120 through gpio_129. For the DM3730/AM3703 Torpedo + Wireless SOM, gpio_128 no longer needs a series termination resistor.

3.1.1.10 Series Termination Resistor

A 22 ohm series termination resistor, R105, has been added to uP_BUS_CLK.

3.1.1.11 Analog to Digital Interface

Four optional pull-down resistors have been added to signals ADCIN0 through ADCIN3. These resistors can be populated under an NPI when the ADCINx signal is not used.

3.1.2 Power and Performance Differences

3.1.2.1 Different VDD1 Operating Points

The DM3730/AM3703 Torpedo + Wireless SOM supports different operating points for VDD1, shown in Table 3.2 below. Verify the maximum speed of the processor against the model number of the DM3730/AM3703 Torpedo + Wireless SOM that is purchased.

Table 3.2: DM3730/AM3703 Torpedo + Wireless SOM VDD1 Operating Points

Operating Point (OPP)	ARM Core Frequency (MHz)	DSP Core Frequency (MHz)	Voltage (V)
OPP1G	1000	800	1.35
OPP130	800	660	1.2
OPP100	600	520	1.1
OPP50	300	260	.9735

3.1.2.2 Different VDD2 Operating Points

The DM3730/AM3703 Torpedo + Wireless SOM supports different operating points for VDD2, shown in Table 3.3 below.

Table 3.3: DM3730/AM3703 Torpedo + Wireless SOM VDD2 Operating Points

Operating Point (OPP)	L3_ICLK frequency (MHz)	Voltage (V)
OPP100	200	1.15
OPP50	100	.9735

3.1.2.3 Current Requirements

The OMAP35x Torpedo SOM only supports a frequency of 600 MHz. The DM3730/AM3703 Torpedo + Wireless SOM supports a frequency up to 1 GHz. Because of this, and the additional current requirements of the wireless module, many of the typical current requirements have significantly increased and it is important to verify that your design can accommodate the additional current. Further details can be found in Section 3 of the *DM3730/AM3703 Torpedo + Wireless SOM Hardware Specification*.

3.1.2.4 Battery Charging

The DM3730/AM3703 Torpedo + Wireless SOM does not support main battery charging. The 5V rail connections have become no-connects with optional resistors supporting CSI2. USB1_VBUS is no longer routed to charging circuitry.

Charging of a backup battery for the real-time clock (RTC) is still supported.

3.2 Mechanical Comparison

The OMAP35x Torpedo SOM and DM3730/AM3703 Torpedo + Wireless SOM share the same physical connectors. However, the PCB size and overall baseboard footprint are slightly larger with the DM3730/AM3703 Torpedo + Wireless SOM and antenna mating is required underneath

the SOM itself. Additional details can be found in Appendix A of the *DM3730/AM3703 Torpedo + Wireless SOM Hardware Specification*.

3.3 Pin Comparison

3.3.1 J1 Connector 100-Pin Comparison

The J1 pinout differences between the OMAP35x Torpedo SOM and the DM3730/AM3703 Torpedo + Wireless SOM can be seen in Table 3.4 below.

Table 3.4: J1 Connector Differences

J1 Pin#	OMAP35x Torpedo SOM Signal Name	DM3730/AM3703 Torpedo + Wireless SOM Signal Name	Notes
19	uP_BUS_CLK	uP_BUS_CLK	7
76	CONFIG11(ADCIN0)	CONFIG11(ADCIN0)	1
78	CONFIG10(ADCIN1)	CONFIG10(ADCIN1)	1
80	CONFIG9(ADCIN2)	CONFIG9(ADCIN2)	1
82	CONFIG8(ADCIN3)	CONFIG8(ADCIN3)	1
81	MCBSP3_FSX	MCBSP3_FSX	3
83	MCBSP3_CLKX	MCBSP3_CLKX	3
87	CONFIG2(SD3_CLK)	LCD_D23	4, 5
99	CONFIG0(SD3_CMD)	LCD_D16	4, 5
86	CONFIG1(MCSPI1_CS2)	CONFG1(LCD_D17)	2
88	CONFIG3(MCSPI1_CS3)	CONFIG3(MCSPI3_CLK)	2
96	CONFIG20(SD3_DATA0)	MCSPi3_CS1	6
94	CONFIG21(SD3_DATA1)	MCSPi3_CS0	6
92	CONFIG22(SD3_DATA2)	MCSPi3_SIMO	6
90	CONFIG23(SD3_DATA3)	MCSPi3_SOMI	6

TABLE NOTES:

1. Non-populated resistor to ground was added for unused ADC inputs (requires NPI to populate).
2. R86 populated; R87 not populated. Default is now for 24-bit LCD.
3. These signals go to the wireless module for BT audio.
4. Higher-order LCD signals now come off of SYS_BOOT signals on the DM3730/AM3703 Torpedo + Wireless SOM.
5. LCD_D16 and LCD_D23 are now dedicated pins.
6. SD3 de-featured; McSPi3 signals are now dedicated pins.
7. uP_BUS_CLK has a series termination resistor on the SOM.

3.3.2 J2 Connector 100-Pin Comparison

The J2 pinout differences between the OMAP35x Torpedo SOM and the DM3730/AM3703 Torpedo + Wireless SOM can be seen in Table 3.5 below.

Table 3.5: J2 Connector Differences

J2 Pin#	OMAP35x Torpedo SOM Signal Name	DM3730/AM3703 Torpedo + Wireless SOM Signal Name	Notes
11	USB1_VBUS	USB1_VBUS	10
13	USB1_VBUS	USB1_VBUS	10
19	5V	CSI2_DX0	3
20	LCD_20	LCD_20(SYS_BOOT3)	5
21	5V	CSI2_DY0	3
23	5V	CSI2_DX1	3
25	5V	CSI2_DY1	3
34	LCD_D19	LCD_D19(SYS_BOOT1)	5
36 ²	LCD_D18	LCD_D18 (SYS_BOOT0)	5, 6
40	LCD_D21	LCD_D21(SYS_BOOT4)	5
52	SD1_DATA4	CSI_FLD	4
54	SD1_DATA5	uP_GPIO_127 ¹	4
55	CONFIG15(CSI_D7)	CONFIG15(CSI_D7)	11
56	SD1_DATA6	uP_GPIO_128 ¹	4, 12
57	CONFIG14(CSI_D6)	CONFIG14(CSI_D6)	11
58	SD1_DATA7	uP_GPIO_129 ¹	4
60	TV_OUT2	GPS_PPS_OUT	9
64	TV_OUT1	BT_EN	9
79	LCD_D2	CONFIG20(LCD_D2)	7, 8
80 ²	LCD_D22	LCD_D22 (SYS_BOOT5)	5, 6
81	LCD_D3	CONFIG21(LCD_D3)	7, 8
82	LCD_D10	CONFIG24(LCD_D10)	8
83	LCD_D1	LCD_D1	7
84	LCD_D11	CONFIG25(LCD_D11)	8
89 ²	SYS_BOOT5	SYS_BOOT5 (LCD_22)	6
94	LCD_D4	CONFIG22(LCD_D4)	7, 8
96	LCD_D5	CONFIG23(LCD_D5)	7, 8
98	LCD_D0	LCD_D0	7

J2 Pin#	OMAP35x Torpedo SOM Signal Name	DM3730/AM3703 Torpedo + Wireless SOM Signal Name	Notes
100 ²	SYS_BOOT0	SYS_BOOT0 (LCD_D18)	6

TABLE NOTES:

1. Same processor pin location.
2. J2.36 and J2.100 connected on the SOM; J2.80 and J2.89 connected on the SOM.
3. DM3730/AM3703 Torpedo + Wireless SOM replaced battery charging with optional CSI2 signals.
4. 8-bit MMC mode de-featured on the DM3730/AM3703 Torpedo + Wireless SOM; signals replaced with others.
5. Higher-order LCD signals now come off of SYS_BOOT signals on the DM3730/AM3703 Torpedo + Wireless SOM.
6. LCD_D18 and LCD_D22 are also connected as SYS_BOOT0 and SYS_BOOT5.
7. LCD_D0 through LCD_D5 are connected to different processor pins and must have their pinmux updated. Their functionality remains the same.
8. LCD_D2 through LCD_D5, LCD_D10, and LCD_D11 are no longer dedicated signals. They are default signals provided on CONFIG20 through CONFIG25. Alternate population allows access to DSI interface.
9. TV out is de-featured. GPS_PPS_OUT and BT_EN replace the TV_OUT signals.
10. USB charging de-featured.
11. CSI_D6 and CSI_D7 are now input-only signals.
12. uP_GPIO_128 no longer needs a series termination resistor.

4 Migration from the DM3730/AM3703 Torpedo SOM

4.1 Electrical Comparison

4.1.1 Signal Differences

4.1.1.1 LCD Signals

LCD_D2 through LCD_D5, LCD_D10, and LCD_D11 are no longer dedicated signals. They are default signals provided on CONFIG20 through CONFIG25. The alternate population provides access to the DSI interface.

NOTE: The above changes do not affect the order of the signals as they are available on expansion connectors J1 and J2. For example, LCD_D2 is still in the same connector location on both the DM3730/AM3703 Torpedo SOM and the DM3730/AM3703 Torpedo + Wireless SOM.

4.1.1.2 SD/MMC3 Signals

On the DM3730/AM3703 Torpedo + Wireless SOM, optional SD/MMC3 signals are no longer available on CONFIG20 through CONFIG23. These signals are now used for interfacing to the wireless module. Instead, McSPI3 signals are directly connected to J1. CONFIG20 through CONFIG23 are now used to choose between LCD and DSI interfaces.

Also, optional SD/MMC3 signals are no longer available on CONFIG0 and CONFIG2. These signals are now used for interfacing to the wireless module. Instead, LCD_D16 and LCD_D23 are directly connected to J1.

4.1.1.3 TV Out

TV out is not supported on the DM3730/AM3703 Torpedo + Wireless SOM. TV_OUT2 and TV_OUT1 are no longer connected to J2. GPS_PPS_OUT and BT_EN replace them.

4.1.1.4 CSI2 Signals

CSI2_DX0, CSI2_DY0, CSI2_DX1 and CSI2_DY1 are now available through resistor population options on J2.19 through J2.25. These pins were no-connects.

4.1.1.5 Product Identification Resistor

A 4.7K resistor, R136, has been placed on HSUSB0_D6 as a pull-down. This is used for product identification in software and has no functional effect.

4.1.2 Power and Performance Differences

4.1.2.1 Current Requirements

Because of the additional current requirements of the wireless module, many of the typical current requirements have significantly increased and it is important to verify that your design can accommodate the additional current. Further details can be found in Section 3 of the *DM3730/AM3703 Torpedo + Wireless SOM Hardware Specification*.

4.2 Mechanical Comparison

The DM3730/AM3703 Torpedo SOM and DM3730/AM3703 Torpedo + Wireless SOM share the same physical connectors. However, the PCB size and overall baseboard footprint are slightly larger with the DM3730/AM3703 Torpedo + Wireless SOM and antenna mating is required underneath the SOM itself. Additional details can be found in Appendix A of the *DM3730/AM3703 Torpedo + Wireless SOM Hardware Specification*.

4.3 Pin Comparison

4.3.1 J1 Connector 100-Pin Comparison

The J1 pinout differences between the DM3730/AM3703 Torpedo SOM and the DM3730/AM3703 Torpedo + Wireless SOM can be seen in Table 4.1 below.

Table 4.1: J1 Connector Differences

J1 Pin#	DM3730/AM3703 Torpedo SOM Signal Name	DM3730/AM3703 Torpedo + Wireless SOM Signal Name	Notes
81	MCBSP3_FSX	MCBSP3_FSX	1
83	MCBSP3_CLKX	MCBSP3_CLKX	1
87	CONFIG2(SD3_CLK)	LCD_D23	2
99	CONFIG0(SD3_CMD)	LCD_D16	2
96	CONFIG20(SD3_DATA0)	MCSPi3_CS1	3
94	CONFIG21(SD3_DATA1)	MCSPi3_CS0	3
92	CONFIG22(SD3_DATA2)	MCSPi3_SIMO	3

J1 Pin#	DM3730/AM3703 Torpedo SOM Signal Name	DM3730/AM3703 Torpedo + Wireless SOM Signal Name	Notes
90	CONFIG23(SD3_DATA3)	MCSPi3_SOMI	3

TABLE NOTES:

1. These signals go to the wireless module for BT audio.
2. LCD_D16 and LCD_D23 are now dedicated pins.
3. SD3 de-featured; McSPi3 signals are now dedicated pins.

4.3.2 J2 Connector 100-Pin Comparison

The J2 pinout differences between the DM3730/AM3703 Torpedo SOM and the DM3730/AM3703 Torpedo + Wireless SOM can be seen in Table 4.2 below.

Table 4.2: J2 Connector Differences

J2 Pin#	DM3730/AM3703 Torpedo SOM Signal Name	DM3730/AM3703 Torpedo + Wireless SOM Signal Name	Notes
19	No Connect	CSI2_DX0(optional)	1
21	No Connect	CSI2_DY0(optional)	1
23	No Connect	CSI2_DX1(optional)	1
25	No Connect	CSI2_DY1(optional)	1
55	CONFIG15(CSI_D7)	CONFIG15(CSI_D7)	4
57	CONFIG14(CSI_D6)	CONFIG14(CSI_D6)	4
60	TV_OUT2	GPS_PPS_OUT	3
64	TV_OUT1	BT_EN	3
79	LCD_D2	CONFIG20(LCD_D2)	2
81	LCD_D3	CONFIG21(LCD_D3)	2
82	LCD_D10	CONFIG24(LCD_D10)	2
84	LCD_D11	CONFIG25(LCD_D11)	2
94	LCD_D4	CONFIG22(LCD_D4)	2
96	LCD_D5	CONFIG23(LCD_D5)	2

TABLE NOTES:

1. The DM3730 Torpedo +Wireless SOM replaced no-connects with optional CSI2 signals.
2. LCD_D2 through LCD_D5, LCD_D10, and LCD_D11 are no longer dedicated signals. They are default signals provided on CONFIG20 through CONFIG25. Alternate population allows access to DSI interface.
3. TV out is de-featured. GPS_PPS_OUT and BT_EN replace the TV_OUT signals.
4. CSI_D6 and CSI_D7 are now input-only signals.

5 Baseboard Comparison

The new Torpedo Launcher 3 Baseboard that ships with the DM3730 Torpedo Development Kit is fully backwards compatible with the OMAP35x Torpedo SOM and DM3730/AM3703 Torpedo SOM. However, there are some key differences between the original Torpedo Launcher Baseboard and the Torpedo Launcher 3 Baseboard that may require software modifications. These differences are described below.

5.1 Wattson Power Measurement

The Torpedo Launcher 3 Baseboard supports [Wattson™](#),⁵ Logic PD's power measurement and performance monitoring application. Wattson delivers real-time graphical feedback and data-logging capabilities without the need for external oscilloscopes and meters, guiding you to the lowest power and highest performance software combination for your product.

Shunt resistors were added to various power planes on the Torpedo Launcher 3 Baseboard to support Wattson; however, they should have no impact on either the performance or the behavior of the Torpedo SOM.

MCSPi2_CS1 is used as an output to interrupt the FT2232 to allow software running on the SOM to notify Wattson.

5.2 Additional Buttons and Capacitance

Two additional buttons were added to the Torpedo Launcher 3 Baseboard for improved Android support. These buttons are tied to MCSPi2_CS0 and MCSPi2_CLK.

In addition, 0.1uF capacitors were added to all the buttons. This can cause signal integrity problems if these signals are not used as buttons. Remove the capacitor to prevent any issues. The affected signals are MSTR_nRST, PWRON, SYS_BOOT0, SYS_BOOT5, MCSPi2_CS0, and MCSPi2_CLK.

5.3 Battery Charger

The DM3730/AM3703 Torpedo SOM and DM3730/AM3703 Torpedo + Wireless SOM no longer support battery charging. The Torpedo Launcher 3 Baseboard has an external charging circuit reference design with an optional configuration for SOM-based battery charging.

There is an option using JP3 to allow software to place the baseboard into a low-power mode using uP_CLKOUT1_26MHz. JP3 is not populated by default.

5.4 Camera Output

The camera output on the original Torpedo Launcher Baseboard is referenced to 1.8V. The Torpedo Launcher 3 Baseboard references the camera output to 3.3V. The output voltage can be modified by replacing R194 and R195.

5.5 24-Bit HDMI Output

The Torpedo Launcher 3 Baseboard includes support for a 24-bit HDMI output. Users can choose between the LCD output and the HDMI output by using a jumper on the baseboard. All HDMI signals are sourced from the buffered side of the LCD interface and should have no impact on the Torpedo SOM.

⁵ <http://www.logicpd.com/products/software/wattson/>

5.6 USB High-Speed Interface

The Torpedo Launcher 3 Baseboard has two USB high-speed host ports, while the original Torpedo Launcher Baseboard has three.

In addition, the USB high-speed host chipset has changed from the ISP1760 to the ISP1763A. This change will require updated software for proper operation. The Logic PD DM37x Linux BSP supports the ISP1760 and ISP1763A host chipsets.

6 Software Comparison

6.1 LogicLoader Bootloader

Both the DM3730/AM3703 Torpedo SOM and the DM3730/AM3703 Torpedo + Wireless SOM require LogicLoader v2.5 for Windows CE. Please note that LogicLoader v2.5 is not available for the OMAP35x Torpedo SOM.

The main difference between the two versions of LogicLoader is that LogicLoader v2.5 no longer includes a config block. In lieu of the config block, LogicLoader v2.5 uses a set of files in the */lboot* partition (*lboot.lol*, *lboot.var*, and *lboot.sup*).

Also, LogicLoader v2.5 now does minimal pin configuration. Any pin not directly used by LogicLoader v2.5 is left in its default boot state. If previous software required pin configurations done in LogicLoader v2.4, that configuration must now be done in the *lboot.sup* or *lboot.lol* scripts.

Please see the [LogicLoader v2.5 User Guide](#)⁶ and the [LogicLoader v2.5 Command Description Manual](#)⁷ for specific details about this new set of files and for additional information about the changes that exist between the two versions. The introductions of each document contain a list of changes and a description of where to find information about those changes within the document.

6.2 Android Gingerbread 2.3.4 BSP

An Android Gingerbread 2.3.4 BSP is available for the DM3730/AM3703 Torpedo + Wireless SOM. The Linux kernel that comes with the DM3730/AM3703 Android Gingerbread 2.3.4 BSP is based on version 3.0.

Please see the [DM3730/AM3703 Android Gingerbread 2.3.4 BSP Release Notes](#)⁸ or the [DM3730/AM3703 Android Gingerbread 2.3.4 BSP User Guide](#)⁹ for further details.

6.3 Linux BSP

The Linux BSP kernel version is 3.0 for the DM3730/AM3703 Torpedo + Wireless SOM.

Please see the [DM37x Linux BSP Release Notes](#)¹⁰ or the [DM37x Linux BSP User Guide](#)¹¹ for further details.

6.4 Windows Embedded CE

At this time, there are no plans for a Windows Embedded CE BSP for the DM3730/AM3703 Torpedo + Wireless SOM.

⁶ <http://support.logicpd.com/downloads/1428/>

⁷ <http://support.logicpd.com/downloads/1440/>

⁸ <http://support.logicpd.com/downloads/1541/>

⁹ <http://support.logicpd.com/downloads/1517/>

¹⁰ <http://support.logicpd.com/downloads/1504/>

¹¹ <http://support.logicpd.com/downloads/1431/>

7 Summary

From a hardware perspective, there are notable changes between the OMAP35x Torpedo SOM or the DM3730/AM3703 Torpedo SOM and the DM3730/AM3703 Torpedo + Wireless SOM that should be taken into consideration. When migrating, be sure to note the pin changes on the J1 and J2 connectors and the GPIO changes that were enacted at the processor level.

From a bootloader perspective, the DM3730-based SOMs require the latest LogicLoader v2.5.x for Windows CE 6.0 and X-Loader for Android and Linux.

From an operating system perspective, the DM3730-based SOMs require different BSPs than the OMAP35x Torpedo SOM.