LOGIC PD™

i.MX31 to AM3703/DM3730 - SOM Comparison Guide

Application Note 608

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Revision History

REV	EDITOR	DESCRIPTION	APPROVAL	DATE
A	BSB	-Initial Release	JMC, AF, BSB	05/15/15

1 Introduction

In May of 2015 Logic PD announced plans to EOL all i.MX31 SOM-LV modules due to the obsolescence of the ST Ericsson USB transceiver chip. In the EOL notice the DM3730 SOM-LV was suggested as an alternate migration path. The DM3730 is one of several Logic PD modules that can be considered when migrating from a current i.MX31 SOM design. This document provides a side by side comparison of the i.MX31 SOM to either the AM3703 or the DM3730 SOM-LV module. Customers interested in considering other solutions beyond the AM3703 SOM-LV or the DM3730 SOM-LV are encouraged to contact Logic PD[1] for other design options.

Logic PD provides a download support website[2] for customers looking to design in either the AM3703 or the DM3730 SOM-LV modules with additional documentation to assist customers in their design. Customers already having access the i.MX31 SOM-LV support site will also be granted access to the AM3703/DM3730 SOM-LV support site as well. New members looking to gain access to the AM3703/DM3730 SOM-LV support site can also register an i.MX31 SOM-LV or development kit to gain access to the AM3703/DM3730 SOM-LV support site.

Customers looking for direct customer support for a 3 or 6-month period may want to consider one of Logic PD's Support Contracts[3]. Two of the most popular contracts provide a detailed schematic review of your baseboard design with a follow-up review meeting.   If a customer is interested in additional schematic review details, they are encouraged to contact Logic PD[4] and request the schematic review process documentation.

Customers with general technical questions may consider posting their question to the Logic PD Technical Discussion Group[5]. This could help other engineers as they migrate their i.MX31 SOM design to either the AM3703 or the DM3730 SOM-LV module.

2 Comparison Table

Table 1 provides a side by side comparison between the i.MX31 SOM-LV SOM and the AM3703/DM3730 SOM-LV modules.   Some trades offs may be required when trying to mix features on a specific SOM. The standard available SOMs are listed in the AM3703/DM3730 SOM-LV product brief[6]. If desired, a custom SOM may be another option to consider. An additional fee for customizing a SOM maybe required.

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[1] http://www.logicpd.com/contact/inquiry/
[2] https://support.logicpd.com/ProductDownloads/DM3730AM3703SOM-LV.aspx
[3] https://support.logicpd.com/TechnicalSupport/SupportPackages.aspx
[4] http://www.logicpd.com/contact/inquiry/
[5] https://support.logicpd.com/TDGForum.aspx
[6] https://support.logicpd.com/DesktopModules/Bring2mind/DMX/Download.aspx?portalid=0&EntryId=710

Table 1: Comparison Table

Features			i.MX31 SOM-LV	AM3703/DM3730 SOM-LV
Temperature Ratings Available			0 ˚C to 70 ˚C (commercial temp) -30 ˚C to 85 ˚C (extended temp)	0 ˚C to 70 ˚C (commercial temp) -20 ˚C to 70 ˚C (extended temp) -40 ˚C to 85 ˚C (industrial temp)
ARM Processors	Core		ARM1136JF-S™ 32-bit RISC CPU	ARM® Cortex™-A8
	Speed		up to 532 MHz	800 MHz, 1 GHz
	Cache		16 KB L1 - Instruction 16 KB L1 - Data 64 KB L2 - I&D	32 KB L1 - Instruction 32 KB L1 - Data 64 KB L2 - I&D
High Performance Image, Video, Audio	(IVA2.2TM) Accelerator Subsystem includes: - TMS320C64x+ DPS Core - Enhanced Direct Memory Access - Video Hardware Accelerators		-	DM3730 Only
PowerVR SGX Graphics Accelerator			-	DM3730 Only
Package	Form Factor		SOM-LV Type I	SOM-LV Type III
	Package Size		59.1 mm x 76.2 mm x 7.9 mm	31.2 mm x 76.5 mm x 7.4 mm
Memory	Dynamic	LP-DDR SDRAM	64, 128 MB	256 MB
	Persistent	NOR	2, 4 MB	0, 8, 32 MB
		NAND	64 MB	512 MB
Memory Card Controllers	SD/MMC		Present	Present
	CF Card		CompactFlash Type I	CompactFlash Type I (memory-mode only)
Boot Options			NAND	SD, NAND
Graphics and Input Related	LCD		up to 800x600 with 16-bit LCD interface	Programmable color LCD controller supports up to a 24 bpp TFT interface Hardware supports XGA 1024 x 768 at 24-bit color
	Camera		-	8-bit, 10-bit, and 12-bit cameras I/F
	4-wire Resistive Touchscreen A/D Controller		Present	Present
	Keypad		7x7	8 x 8
Serial Communications Related	UART I/F		3	3
	SPI Controllers		2 - SPI	2 - SPI
	IrDA	FIR	-	4,000 k bps
		MIR	-	1,152 k bps
		SIR	up to 115.2 k bps	up to 115.2 k bps
	USB	Client	-	-
		Host	USB 2.0 Hi-Speed	3 - USB 2.0 Hi-Speed
		OTG	USB 2.0 Hi-Speed	USB 2.0 High Speed
	I2C		2	3
	Audio	I2S	I2S audio codec (16-bit stereo DAC, 13-bit ADC)	I2C audio codec (16-bit stereo DAC, 13-bit ADC)
		AC '97	-	-
System and Test Units	GPIO		Present	Present
	RTC		Present	Present
	JTAG		Present	JTAG & ETM Support
PWM			Present	Present
Network Support			10/100 Base-T Ethernet controller for application/debug (LAN 91C117)	10/100 Base-T Ethernet controller for application/debug (LAN 9221) 802.11b/g/n wireless Ethernet Bluetooth 2.1 + EDR
Available BSP Options			LogicLoader™ (bootloader/monitor) Windows Embedded CE 5.0 and 6.0 BSPs	LogicLoader™ (bootloader/monitor) Android, Linux™, Windows® Embedded CE BSP
I/O Voltage			1.8, 2.7 & 2.8 V	1.8 V
RoHS Compliant			Yes	Yes
Average Power			809 mW TYP idle in FCT, Ethernet not connected, no LCD	286.4 mW TYP Linux Idle
Product Lifetime			EOL	2020 est (TI processor to 2024)

3   Summary

Information in this application note has been provided to assists customers in migrating their design from the i.MX31 SOM-LV to either the AM3703 or the DM3730 SOM-LV module.

The product lifetime of the DM37x SOM is currently estimated at 2020 due to the fact that none of the components are shown to be EOL before 2020. It is likely the product lifetime could continue beyond 2020, consistent with the availability of the TI processor which is currently indicated through 2024.

Customers looking for additional assistance in their migration effort are encouraged to submit a post to the [Logic PD Technical Discussion Group](https://support.logicpd.com/TDGForum.aspx)[7] forum.

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[7] https://support.logicpd.com/TDGForum.aspx