

# TRITON-TX25 low-cost system-on-module based on Freescale i.MX25

TRITON-TX25 is a self-contained production-quality module, based on a Freescale i.MX257 ARM9 microcontroller at 400MHz, in automotive temperature grade (-40C / +85C) with high-quality implementations of both Windows CE and Linux. TRITON-TX25 is a complete solution, with full software support, and ready to be designed into an embedded system.

For development you simply plug the TRITON-TX25 into the StarterKit-5 development baseboard, and then in production the StarterKit is replaced by your own custom breakout base, which may be designed and manufactured by us on your behalf.

Because the TRITON system includes a production quality Board Support Package (BSP) and production quality module, project times are cut dramatically.

The system is supplied running either Linux 2.6, or Windows Embedded CE 6.0.

4.2mm.

The module operates from a single 3.3V supply, and may be powered via USB, or a Li-Ion/Polymer cell. The TX25 ships with



**TRITON-TX25 ARM9 Module Shown Actual Size**

bootloader firmware installed, and full Linux 2.6, Windows Embedded CE 6.0 BSP with the StarterKit-5 baseboard.

## StarterKit-5 Baseboard



**TRITON Starter Kit and optional touch-screen**

TRITON-TX25 includes an i.MX257 (optionally i.MX258) 400MHz ARM9 processor, 64MB SDRAM and 128MB NAND Flash.

The integrated display controller permits direct connection of an LCD screen of up to 640 x 480 resolution. The microcontroller also provides an integral Ethernet 10/100 MAC, as well as USB 2.0, CAN, SD Card, UARTs and various other interfaces. The processor's I/O is accessible via a standard DIMM200 socket, which in turn is available via connectors and headers on the StarterKit-5. The overall size of TRITON-TX25 is 67.6mm x 26mm x

System Control		CPU Platform				Connectivity	
SJTAG/CEM		<b>ARM926EJ-S</b> 266-400 MHz				Smartcard I/F x 2	
ETM						16kB I-Cache	
Bootstrap		16kB D-Cache		MMU		HS USB Host + FS Phyl	
CLK Mgt.		5 x 5 Crossbar		Internal Memory		10/100 Ethernet	
Std System		128kB SRAM		32kB ROM		12bit ADC w/ Touchscreen Controller	
Timer x 4	PWM x 4	External Memory I/F		MMC+/SD/SDIO x 2		CE-ATA	
Watch Dog	GPIO x 3	NANDFC (8bit ECC)	SDRAMC mDDR DDR2 SDRAM	WEIM NOR External Peripherals	P-ATA		SSMPS x 2
SDMA	DVFS	User I/F		Security		ESAI	
DPTC	CMOS Sensor I/F	SOC		JIM		CAN x 2	
LDC	LDC	RTICv3		RNGB		PC x 3	
SLCDC	8x8 Keypad	Dry-Ice		SRTC		CSPI x 3	
		Tamp Det (V, freq, Temp.)				UART x 5	
						GPIO x 4	
						Audio Mux	
						1-Wire	
						IrDA	

For development purposes, the TRITON-TX25 plugs into the StarterKit-5 baseboard via its DIMM200 connector. This combination, with optional touch-screen display is supplied as a complete development kit running Linux or Windows CE 6.0. With the Linux BSP, a complete GCC toolchain is shipped, allowing users to modify the BSP as required, as well as a complete development environment as a VMWare virtual disk. Windows CE source code is available for a fee.

The StarterKit-5 includes connectors for all the I/O provided by the ARM9 processor and TRITON-TX25, including an SD/MMC card sockets, 2 x RS232 connectors, USB-OTG and USB-Host connectors, a D-SUB15 VGA connector for the video DAC and Ethernet connector. In addition, there is an audio codec and

touchscreen controller with two 3.5mm audio connectors.

The board is powered via USB, and external supply source, or from a 3.0 to 4.2v Li-Ion/ Polymer cell.

To facilitate creation of a production baseboard, full schematics are provided for the StarterKit-5. We offer a custom baseboard design and production service for customers with tight time-to-market constraints who wish to focus their efforts on application development.

There is also a JTAG interface, which can be used for the connection of a debug probe.

An optional LCD touch screen is available, based on a 5.7" TFT display with 640 x 480 resolution. This is connected to the display controller and touch controller of the i.MX25 via headers.

## TRITON-TX25 Feature and Option Summary

The table shows how the various features of the development system are available - in other words, whether they are standard features of the microcontroller, the TRITON-TX25 module or the StarterKit-5. Where more than one value is listed, the underlined value represents the standard configuration. Optional features are usually only available for orders of 250 or more modules, however non-standard configurations are sometimes available in smaller quantities - please ask for details.

The complete list of connectors on StarterKit-5 is:

- DIMM200 TRITON-TX socket
- 4x50pin cable headers
- 2xSD/MMC card socket
- RS232 on10pin header
- RS232 on D-SUB connector
- USB OTG
- USB host
- Video Output to D-SUB 15
- 3.5mm headphone
- JTAG
- 10/100 Mbit Ethernet
- Power (or via USB Host)

TRITON Starter-Kit systems, whether running Linux or Windows CE are sold and supported worldwide by Direct Insight, who also offer a broad range of complementary solutions including compilers, debuggers, JTAG interfaces, graphics software, driver development tools, device programming solutions, JTAG test systems, emulators and more.

We also offer a custom baseboard design and manufacture service.

Visit our regularly updated website at [www.directinsight.co.uk](http://www.directinsight.co.uk) or call +44 1295 768800 for further information.

<i>TRITON-TX25 Feature:</i>	processor	module	baseboard
UART / RS232	5		
I2C Interface	2		
LCD controller	1		
SSP (synchronous serial incl. AC97, I2S)	1		
CAN	2		
Bluetooth UART	1		
SD card / SDIO (4-bit)	1		
1-wire interface	1		
USB 2.0 Host	1		
USB 2.0 OTG	1		
SPI	1		
PWM controller	1		
JTAG	1		
Audio Codec			✓
Touch screen interface	4/5 wire		
Connectors (see list)			✓
Video DAC / VGA out			✓
Ethernet 10/100 BaseT	1		
SDRAM(MB)		64	
Processor clock max (MHz)	400		
NAND Flash (MB)		128	
PDF schematics			✓
Temperature Range		-40C/+85C	
Dimensions		26 x 68mm	
<i>* other interfaces . via headers</i>			



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