

## System On Module

- Processor Marvell® PXA270M (312/520MHz)
- RAM 32/64/128MB mobile SDRAM
- ROM 16/32/64MB NOR Flash
- RTC DS1339 Real Time Clock
- Power supply Single 3.3V
- Size 31mm SO-DIMM
- Temp.-Range -25°C..85°C

## Key Features

- Buffered 32-Bit External Memory Interface
- Full Speed USB 1.1 Host/Client
- LCD controller up to 640 x 480, 18bpp
- Camera Interface
- Several Interfaces:  
3x UART, SDIO, AC97/I2S,I2C,  
3x SSP, Keypad, Compact Flash

## OS Support

- Windows Embedded CE 6.0
- Linux 2.6
- RedBoot Bootloader

## Development System

- Starter-Kit III



**520 MHz  
XScale**

## Board highlights:

- World's smallest PXA270 system on module
- Lowest power solution, down to 2mW in sleep mode
- 32-bit external memory interface
- NOR Flash
- high efficiency programmable power supply
- Single 3.3V supply
- All PXA270 interface signals are available on a standard DIMM200 socket

The T270M is a complete computer, implemented on a board smaller than a credit card, and ready to be designed into your embedded system. T270M includes a Intel® / Marvell PXA processor, SDRAM and Flash memory. The integrated LCD-controller enables direct connection of a LCD screen, and the standard PCMCIA interface permits simple extension and integration into a target system.

The T270M is specifically targeted at embedded applications where size, high cpu-performance and low power consumption are critical factors.

## System on module

- Intel® / Marvell® PXA270 (520MHz)
- 32/64/128 MByte mobile SDRAM (1.8V ultra low power, 32bit)
- 16/32/64 MByte NOR Flash memory
- 32-bit external memory interface
- Single 3.3V power supply
- RedBoot firmware
- SODIMM-module (67,6mm x 31 mm x 4,2mm)
- Operating temperature range -25°C..85°C
- RoHS compliant

## PXA270

The Intel® / Marvell PXA270 processor is designed to meet the growing demands of a new generation of leading-edge embedded products. Featuring advanced technologies that offer high performance, flexibility and robust functionality, the Intel / Marvell PXA270 processor is packaged specifically for the embedded market and is ideal for the low-power framework of battery-powered devices. The Intel / Marvell PXA270 processor is the first Intel / Marvell XScale® technology-based processor to include Intel® Wireless MMX™ technology. This enables high-performance multimedia acceleration with an industry proven instruction set. Another innovative feature is the Intel® Quick Capture technology, which provides one of the industry's most flexible and powerful camera interfaces for capturing digital images and video. The new capabilities of Wireless Intel SpeedStep® Power Manager technology provide a quantum leap forward in low-power operation, while maintaining the highest levels of performance.

## RedBoot Bootloader

T270M is delivered with pre-installed RedBoot firmware. RedBoot supports several low-level-debugging options and file download via serial XModem. These files can additionally be stored into the permanent flash-memory to be started by command or power-on.

## Features

Intel / Marvell XScale® Technology PXA270 core up to 520 MHz

## Embedded Packaging

67,6mm x 31 mm x 4,2mm rugged DIMM-Module with fastener

## Extended Temperature Range

-25°C to 85°C ambient temperature range available

## Reduced Power Consumption

Wireless Intel SpeedStep® Power Manager technology with four low-power modes can change frequency and voltage dynamically. 1,8V ultra low power memories on-board.

## Incredible Multimedia

Familiar Intel® Wireless MMX™ technology instructions designed for high-performance multimedia and advanced video.

## Advanced Camera Interface

Intel® Quick Capture technology supports cameras for capturing digital images, video and low-power, real-time previews.

## Enhanced LCD Controller

Dual-panel LCD with up to 24-bit color. Hardware color space conversion with 256 KB of on-chip SRAM for faster video. Two overlays reduce LCD bandwidth. Integrated Intel Quick Capture technology enables fast video preview.

## Fast Access to Wireless Data

Intel® Mobile Scalable Link provides up to 416 Mbps link between communications and applications processors.

## Large Peripheral Set

- Quick Capture Interface
- Enhanced LCD controller
- USB 1.1 Host/Client, PWM, 4-bit SD I/O
- USIM card, Keypad controller
- UART x3, AC97/I2C, SSP x3, I2C, JTAG

## STARTER-KIT III

The Starter-Kit III is a ready-to-use development system for building applications based on the T270M embedded processor board.

- T270M DIMM200 socket
- Compact Flash type II socket
- SD/MMC-card socket
- USB-Device connector
- USB-Host connector
- D-SUB 15 VGA connector
- 2x 3.5mm audio connectors (stereo line in, headphone)
- JTAG interface
- UCB1400 audio codec & touchscreen controller (obsolete!)
- 3x RS232 on 10pin flat cable headers
- T270M pins connected to flat cable headers
- daughter board slot for easy application design-in
- 10/100 Mbit/s Ethernet (SMSC LAN91C111)
- 3,3V single supply design, 5V also available onboard
- Operating Voltage Range: 8-24VDC
- Transient protected for automotive applications
- 100mm x 160mm, overall height 17mm
- Schematics of the base board are included for reference.

## Ordering Information

Order Number	PXA270M	SDRAM	Flash	Temp.
T270M/520/64S/32F/E85/ROHS	520MHz	64MB	32MB	-25°C..85°C

## PXA270 to PXA270M Migration

### Description

The fabrication of the PXA270 processor has been transferred from the 180nm Intel process technology to TSMC. The PXA270M is based on the identical database without any circuit change. Minor changes were made to the minimum voltages since the fab process is not 100% identical. The Memory Stick support has been omitted.

### Impact to existing T270 designs

The T270M should be qualified for existing designs. The PXA270M padding drivers and strength of pullup/pulldown resistors are different across process voltage and temperature (PVT) when compared with the PXA270 processor. Some pins may need to be configured differently when migrating from T270 to T270M, such as programmable drive strength may need to be tuned or external pullup/pulldown resistors may have to be changed or added.

Refer to the Marvell PXA270M Processor Specification Update for details:

[http://www.marvell.com/products/processors/applications/pxa\\_family/pxa\\_27x\\_spec\\_update.pdf](http://www.marvell.com/products/processors/applications/pxa_family/pxa_27x_spec_update.pdf)

### Main Differences

Feature	PXA270	PXA270M
CPU ID	0x69054117	0x69054118
JTAD ID	0x79265013	0x89265013
Memory Stick	Supported	Not supported

### Ordering information

Old order number	New order number
T270/...	T270M/...

(Version number difference bold typed)

### Part numbering

Old part number	New part number
T270-x <b>0</b> xx	T270-x <b>1</b> xx
Example: T270-5 <b>0</b> 44	T270-5 <b>1</b> 44

(Version number difference bold typed)