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Products

CM-X255 (ARMCORE-GX) module

Computer-On-Module's

CM-X270

CM-X255

CM-iGLX

CM-F82

CM-i686M

CM-i686B

CM-iVCF

CM-i886
(NFND)

CM-i586
(NFND)

PC/104+ &
ATX boards

SBC-X270

SBC-X255

SBC-i686

SBC-iVCF

SBC-i886
(NFND)

ATX

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Comparison

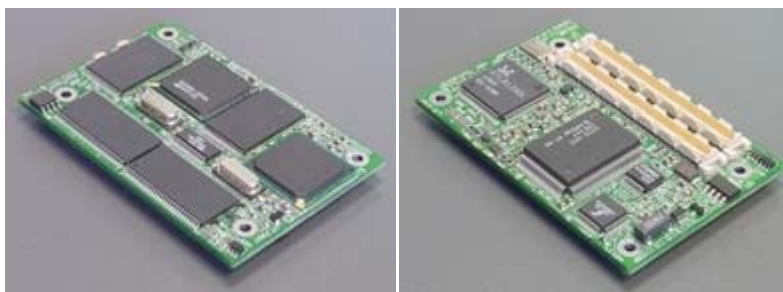
- PC/104
Comparison

- Linux
Support

- Evaluation
Kits

- Industrial
Temperature

- RoHS
Compliance



Top View

Bottom View

CM-X255 Highlights

- **Full-featured Single Board Computer on module**
- **Basic configuration price below \$50 !**
- **Intel's XScale PXA255 CPU, up to 400 MHz, 32+32 KB cache**
- **General purpose bus and optional PCI, LPC, AC97 busses**
- **16 - 64 Mbyte SDRAM**
- **1 - 512 Mbyte Flash Disk**
- **Graphics Controller for STN and TFT panels**
[see LCD panel support](#)
- **PCMCIA controller**
- **Sound codec with speaker and microphone support** (optional)
- **Touchscreen Controller** (optional)
- **Slave and host USB ports** (optional)
- **Standard peripherals: serial ports, LPT port, I/O ports, FDC, PS/2 keyboard and mouse, IrDA, HDD interface** (optional)
- **10/100BaseT Ethernet port** (optional)
- **Power consumption below 1W**

The CM-X255 module is a tiny "system-on-module" computer, designed to serve as a building block in embedded applications. CM-X255 is advanced and backward-compatible version of original ARMCORE module, containing several significant [improvements](#). The CM-X255 module has all the components needed to run operating systems such as Linux and Windows CE. Ready packages for these operating systems are available from CompuLab.

The CM-X255 is both small and inexpensive. Its small size allows integration into hand-held and mobile applications, providing a powerful computing core. Its exceedingly low price makes it an ideal selection for cost-sensitive applications. Based on Intel's XScale architecture, the CM-X255 delivers a price/performance ratio significantly better than available from x86-based counterparts.

The feature set of the CM-X255 module combines a 32-bit CPU, SDRAM, Flash Disk and vital computing peripherals. For embedded applications, the CM-X255 provides a 32-bit PCI bus, 100Mbit Ethernet, serial ports, general purpose I/O lines and many other essential functions.

Standardized CAMI ("CompuLab's Aggregated Module Interface") connectors of CM-X255 module allow interchangeability with other CORE

- **66 x 44 mm size**
- **Interchangeable with other CORE modules via CAMI connectors**
- **[SB-X255](#) - turns the CM-X255 module into a PC/104+ single board computer**

For more information, see [Developer Resources](#) page.

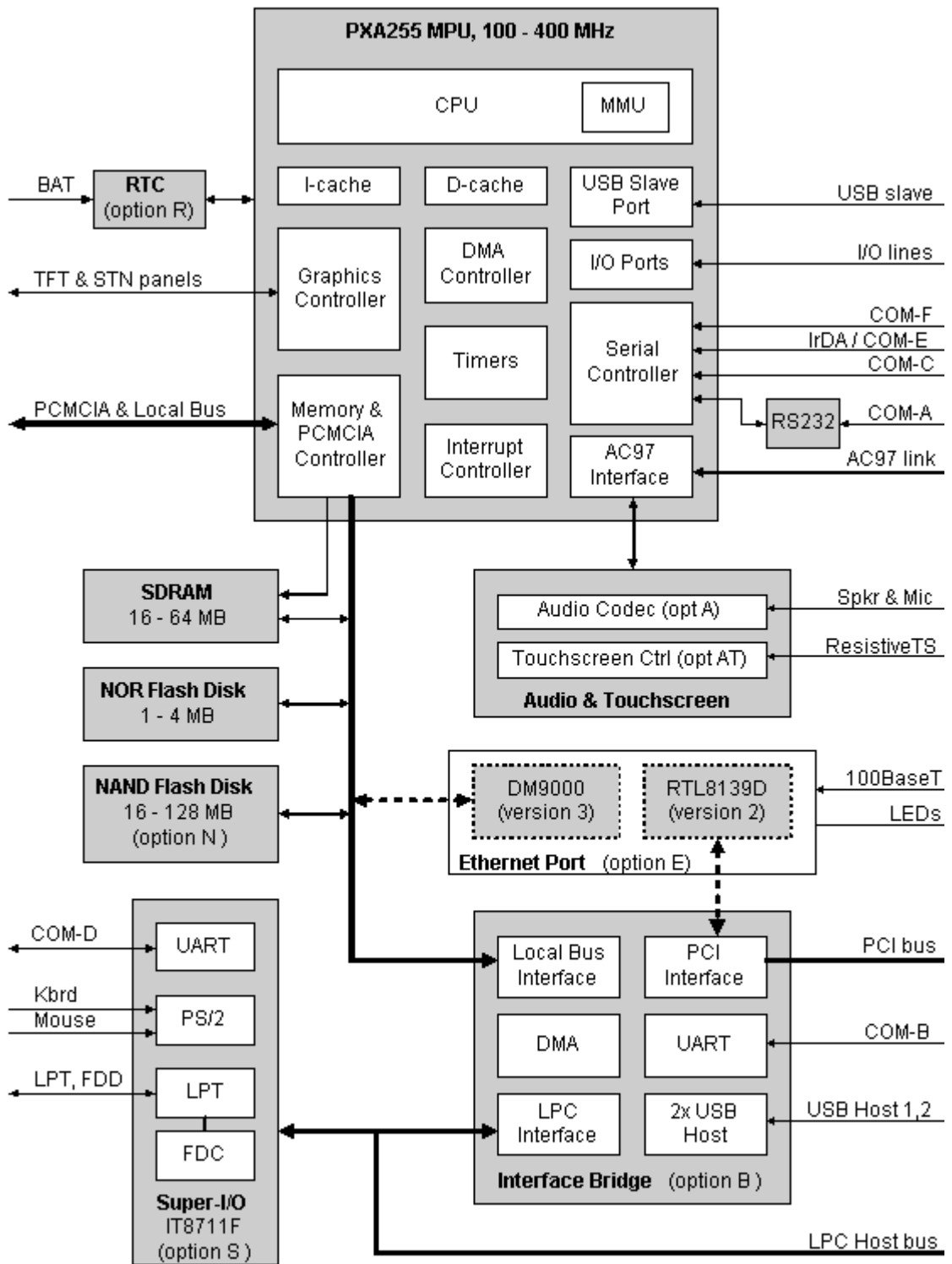
modules, enabling the flexibility required in a dynamic market where application requirements can change rapidly.

Software support for the CM-X255 includes ready-to-run packages for:

- * **Linux**
- * **Windows CE**

[See O/S Support Coverage Map](#)

Block Diagram



CM-X255 Features

"Option" column specifies the configuration code required to have the particular feature. "+" means that the feature is available always.

CPU & Core logic

| Feature | Specifications | Option |
|---------------|--|--------|
| CPU | Intel XScale PXA255, 100 - 400 MHz | + |
| Address Space | 128 MB | + |
| Internal Bus | 32-bit, 100 MHz | + |
| Cache | 32 KB I-cache and 32 KB D-cache, WB | + |
| Core Logic | DMA and Interrupt controllers, Timers | + |
| RTC | Real Time Clock, powered by external lithium battery | R |

Memory and Busses

| Feature | Specifications | Option |
|--------------------|--|--------|
| DRAM | 16 - 64 MB, SDRAM, 100 MHz, 32-bit | + |
| NOR Flash Disk | 1 - 4 Mbytes | + |
| NAND Flash Disk | 16 - 512 Mbytes, optional | N |
| I/O Tolerance | Local Bus - 3.3V, PCI - 5V | + |
| External Busses | Local bus / PCMCIA, PCI, LPC, AC97 | |
| External local bus | 16-bit, variable rate up to 100 MHz | + |
| AC97 | AC97 / AMC97 Rev 2.1 compliant | + |
| PCI bus | 32-bit, 2.1-compliant, 132 MB/s, arbiter for 4 masters | B |
| LPC bus | Host, 33 MHz, Intel LPC v1.0 compatible | B |
| JTAG Interface | Available | + |

Peripherals

| Feature | Specifications | Option |
|-----------------------|---|------------------------------|
| Graphics Controller | 4/8/16 bit color, TFT / STN, resolution up to 1024 x 768, frame buffer in system SDRAM. | + |
| USB | One Slave port, 12 Mbps Two Host ports, 1.5 / 12 Mbps, OHCI v1.0 compliant | + B |
| Serial Ports (UARTs) | Up to 5 UART ports, 16550 compatible, max 230 - 960 kbps COM-A - RS232 Rx/Tx, partial modem COM-B - TTL, Rx/Tx COM-C - TTL, full modem COM-D - TTL, full modem COM-E - TTL, Rx/Tx, shared with FIR COM-F - TTL, partial modem. (shared with other essential funct.) | + B + B,S + + |
| General Purpose I/O | 5 dedicated lines plus about 40 lines shared with other functions. Can be also used as interrupt inputs. | + |
| Hard Disk Interface | IDE, PIO mode | + |
| LPT - Parallel Port | Bi-directional with EPP mode. | B,S |
| Floppy Disk Interface | Routed through LPT pins | B,S |
| Keyboard Interface | PS/2 or redirection from COM | B,S |
| Mouse Interface | PS/2 | B,S |
| Infrared (IrDA) Port | Up to 115Kbps in SIR mode, 4Mbps in FIR mode | + |

| | | |
|-------------------|---|-----------|
| Ethernet | MAC & PHY, 10/100BaseT, Activity LED's. The ethernet port is implemented differently than in the previous version: Version 2 - Realtek 8139, on PCI bus. Requires Interface Bridge Version 3 - Davicom DM9000, on local bus | B, E E |
| Audio codec | Crystal CS4299 or Phillips UCB1400, AC97 interface, mono microphone input, stereo line input and 25 mW output for active speakers | A |
| Touchscreen ctrl. | A part of the UCB1400 codec chip. Supports resistive touch panels. (This feature is not available in the previous version 2 of CM-X255) | AT |
| PCMCIA controller | Direct support for 1st slot, hooks for 2nd slot, 8/16 bit interface | + |

Electrical, Mechanical and Environmental Specifications

| | |
|-------------------------------|--|
| Supply Voltage | Single 3.3V or dual 3.3V / 5.0V (with Super-I/O) |
| Power consumption | 0.2 - 2 watt, depending on configuration and CPU speed |
| Dimensions | 66 x 44 x 7 mm |
| Weight | 25 gram |
| MTBF | > 100,000 hours |
| Operation temperature (case) | Commercial: 0° to 70° C Extended: -20° to 70° C Industrial: -40° to 85° C. Click for availability note |
| Storage temperature | -40° to 85° C |
| Relative humidity | 10% to 90% (operation) 05% to 95% (storage) |
| Shock | 50G / 20 ms |
| Vibration | 20G / 0 - 600 Hz |
| Connectors | 2 x 140 pin, 0.6 mm |
| Connector insertion / removal | 50 cycles |

For more information see:

- [CM-X255 Reference Guide](#)
- [Developer Resources](#)

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