

CM10

Rugged COM Express with TI Sitara ARM Cortex-A15 Computer-On-Module

- » TI Sitara ARM Cortex-A15 AM57xx
- » Single or dual core processor
- » Built-in quad core PRU and DSP core
- » Up to 2 GB DDR3 SDRAM
- » eMMC multimedia card
- » U-Boot Universal Boot Loader
- » -40°C to +85°C screened
- » PICMG COM.0 COM Express Mini form factor
- » Rugged COM Express (VITA 59 in process) version on request



The CM10 is a low-power COM Express Mini module built around the TI Sitara ARM Cortex-A15 AM57xx series of processors with or without graphics support.

Low Power, High-Performance Processor

Processor versions with graphics support (only AM57x8) offer 1080p HD video acceleration, dual 3D graphics and single 2D graphics options for an enhanced user interface.

The processor series features scalable single/dual Cortex-A15 and C66x DSP processors as well as two Programmable Real-Time Units (PRU) and a dual Cortex-M4 for real-time, deterministic control.

Wide Range of I/O, Small Space

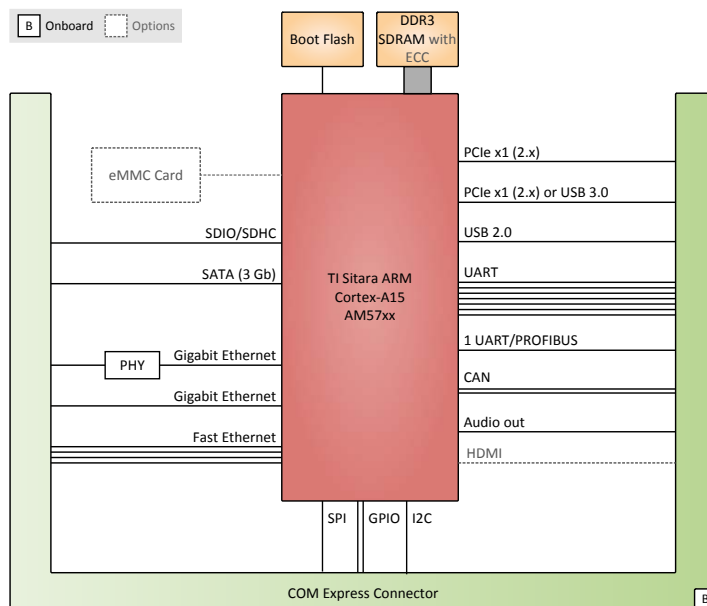
A wide range of standard I/O is supported by the processor which makes it possible to implement many functions on a very small form factor.

The CM10 is mechanically compliant to the COM Express Mini format. Due to the multitude of I/O offered by the ARM Cortex-A15 processor, however, the pin assignment differs from the standard COM Express type 10.

Rugged for Harsh Environments

The exclusive use of soldered components ensures that the COM withstands shock and vibration. The design is optimized for conformal coating making it ideally suited for rugged environments. A VITA 59 (Rugged COM Express) version is available on request.

Due to its low power consumption, the module can be operated without fans and in the extended temperature range of -40°C up to +85°C. The processor's long-term availability ensures future-safety for a wide range of applications.



CPU

- The following CPU types are available:
 - TI Sitara ARM Cortex-A15, AM5716, 500 MHz/1.5 GHz, single core, no ECC
 - TI Sitara ARM Cortex-A15, AM5726, 1.5 GHz, dual core, no ECC (on request)
 - TI Sitara ARM Cortex-A15, AM5718, 1.5 GHz, single core, no ECC, with GPU (optional)
 - TI Sitara ARM Cortex-A15, AM5738, 1.5 GHz, single core, ECC, with GPU (optional)

Memory

- System Memory
 - Soldered DDR3, ECC support
 - 1 GB, or 2 GB
- Boot Flash
 - 4 MB or
 - 8 MB or
 - 16 MB

Mass Storage

- The following mass storage devices can be assembled:
 - eMMC device, soldered; different sizes available

Graphics

- Integrated in processor; only with AM5718 or AM5738
- Maximum resolution: 1920 × 1080 pixels
- 60 fps frame frequency
- 2D and 3D graphics
- Display controller with DMA engine and up to three pipelines
- HDMI encoder: HDMI 1.4a and DVI 1.0

Onboard Interfaces

- Available via COM Express connector
- SATA
 - One channel, SATA Revision 2.x
- SDIO/SDHC
 - One interface
- Video
 - One HDMI interface
- Audio
 - One Multichannel Audio Serial Port
- USB
 - One host channel, USB 2.0
 - One host channel, USB 3.0 (configurable; instead of one PCI Express x1)
- Ethernet
 - Two channels, 1000BASE-T
 - Four channels, 100BASE-T
 - Two link and activity LEDs per channel
- PCI Express
 - One x1 link, PCIe 2.x or
 - Two x1 links, PCIe 2.x (configurable; second link instead of USB 3.0) or
 - One x2 link, PCIe 2.x (configurable; second link instead of USB 3.0)
- UART
 - Seven interfaces
 - Physical interfaces RS232 or RS422/RS485 depending on implementation on carrier board
- UART or PROFIBUS
 - One interface
 - Physical interfaces RS232 or RS422/RS485 depending on implementation on carrier board
- CAN bus
 - Two CAN bus channels, 2.0B CAN protocol
- I2C
 - One I2C interface
- SPI
 - One SPI interface
- GPIO
 - Two GPIO lines

Supervision and Control

- Watchdog timer
- Temperature measurement
- Real-time clock with supercapacitor or battery backup

Computer-On-Module Standard

- PICMG COM.0 COM Express Module Base Specification
 - COM Express Mini, Module Pin-out not compatible
- VITA 59 RCE: Rugged COM Express (in process) available on request
 - With conduction cooling cover and frame
 - Rugged COM Express Mini, Module Pin-out not compatible

Electrical Specifications

- Supply voltage
 - +12 V (+4.75 V to +12.60 V)
- Power consumption
 - 0.45 A max., specified
 - 0.6 A max., specified

Mechanical Specifications

- Dimensions
 - 55 mm x 84 mm (models conforming to PICMG COM.0 COM Express Mini format)
- Weight
 - tbd. g (model 15CM10-00)

Environmental Specifications

- Temperature range (operation)
 - -40°C to +85°C (screened), compliant with EN 50155, class TX (model 15CM10-00)
- Temperature range (storage): -40°C to +85°C
- Cooling Concept
 - Air-cooled versions according to PICMG COM.0 COM Express standard
 - Conduction-cooled versions according to VITA 59 RCE: Rugged COM Express (in process) available on request
- Relative humidity (operation): max. 95% non-condensing
- Relative humidity (storage): max. 95% non-condensing
- Altitude: -300 m to +3000 m
- Shock: EN 50125-3, class: 3 m from track
- Vibration: EN 50125-3, class: 3 m from track
- Conformal coating; optional

Safety

- Flammability (PCBs)
 - UL 94 V-0

EMC

- EMC behavior depends on the system and housing surrounding the COM Express module.
- The Rugged COM Express module in its cover and frame supports the system to meet the requirements of
 - EN 50155
 - EN 60068-2-30
 - EN 55022
 - EN 50121-3-2

BIOS

- U-Boot Universal Boot Loader

Software Support

- Linux
- For more information on supported operating system versions and drivers see Software.

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Up-to-date information, documentation and ordering information:

www.men.de/products/cm10/

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