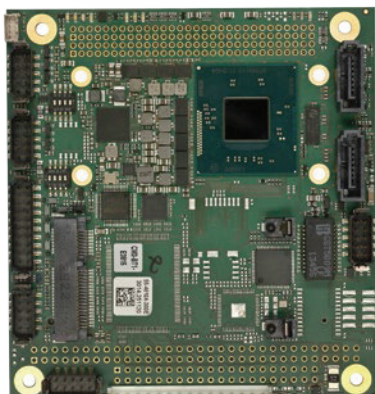


# CM3-BT4

Extreme Rugged™, PCI-104 Single Board Computer with Intel® Atom™ Processor System-on-Chip

**NEW**



## Features

- Quad-core Intel® Atom™ Processor System-on-Chip
- Up to 4GB DDR3L at 1333MHz
- Supports VGA and LVDS
- 2x GbE
- 1x SATA 3Gb/s (optional 2x SATA), 1x USB 3.0 + 2x USB 2.0, 8x GPIO
- Extreme Rugged™ operating temperature: -40°C to +85°C
- Supports Smart Embedded Management Agent (SEMA) functions

## Specifications

### Core System

**CPU** Quad-core Intel® Atom™ Processor System-on-Chip Atom™ E3845 (4C), 1.91 GHz, 542/792 (Turbo), 10W  
 Supports : single, dual or quad Out-of-Order Execution (OOE) processor cores, Intel® VT-x, Intel® SSE4.1 and SSE4.2, Intel® 64 architecture, IA 32-bit, PCLMULQDQ Instruction DRNG, Intel® Thermal Monitor (TM1 & TM2)

Note: Availability of features may vary between processor SKUs.

**Memory** Up to 4GB DDR3L-1066/1333 MHz DDR3L SO-DIMM

**Embedded BIOS** AMI EFI with CMOS backup in 8MB SPI BIOS

**Cache** Primary 32 KiB, 8-way L1 instruction cache and 24 KiB, 6-way L1 write-back data cache

**Expansion Busses** Ordering options for PCI-104 (PCI)

**SEMA Board Controller** Supports: Voltage/Current monitoring, Power Sequence debug support, AT/ATX mode control, Logistics and Forensic information, Flat Panel Control, General Purpose I²C, Failsafe BIOS (dual BIOS), Watchdog Timer and Fan Control

**Debug Headers** 40-pin multipurpose flat cable connector

Note: Use in combination with DB-40 debug module providing BIOS POST code LED, BMC access, SPI BIOS flashing, Power Testpoints, Debug LEDs

### Video

**GPU Feature Support** 7th generation Intel® graphics core architecture with four execution units  
 Supporting two independent displays  
 3D graphics hardware acceleration  
 Support for DirectX 11, OCL 1.1, OGL ES Halt/2.0/1.1, OGL 3.2  
 Video decode hardware acceleration including support for H.264, MPEG2, MVC, VC-1, WMV9 and VP8 formats  
 Video encode hardware acceleration including support for H.264, MPEG2 and MVC formats

**LVDS** Single/dual channel 18/24-bit LVDS from eDP

**VGA** Yes

### Audio

**Chipset** Intel® HD Audio integrated in SOC

**Audio Codec** ALC886

### Ethernet

**Intel® MAC/PHY Interface** 2x Intel® i210 (MAC/PHY) Ethernet controller  
 10/100/1000 GbE connection

### I/O Interfaces

**USB** 3x USB 2.0 (1x on mSATA) + 1x USB 3.0

**SATA** 1x SATA 3Gb/s shared with mSATA (optional 2nd SATA 3GB/s port w/o mSATA support)

**eMMC** Optional soldered, bootable eMMC flash storage 8 GB

**GPIO** 8x

**Serial** 2x RS-232/485 (with full handshake)

Optional: 2x RS-232/485 (with full handshake) + 2x RS-232/485 (TX,RX,CTS,RTS only)

### LPC

LPC UART NCT5104D (Nuvoton)

### Power

**Standard Input** ATX = 5V±5% / 5Vsb ±5%

AT = 5V±5%

**Management** ACPI 5.0 compliant

**Power States** C1-C6, S0, S3, S4, S5 (Wake on USB S3/S4, Wake on LAN S3/S4/S5)

**ECO mode** Supports deep S5 (ECO mode) for power saving

### Mechanical and Environmental

**Form Factor** PCI-104 Version 2.3

**Dimension** 90 mm x 96 mm

**Operating Temperature** Standard: 0°C to +60°C

Extreme Rugged™: -40°C to +85°C

**Humidity** 5-90% RH operating, non-condensing

5-95% RH storage (and operating with conformal coating)

**Shock and Vibration** IEC 60068-2-64 and IEC-60068-2-27

MIL-STD-202F, Method 213B, Table 213-I, Condition A and Method 214A, Table 214-I, Condition D

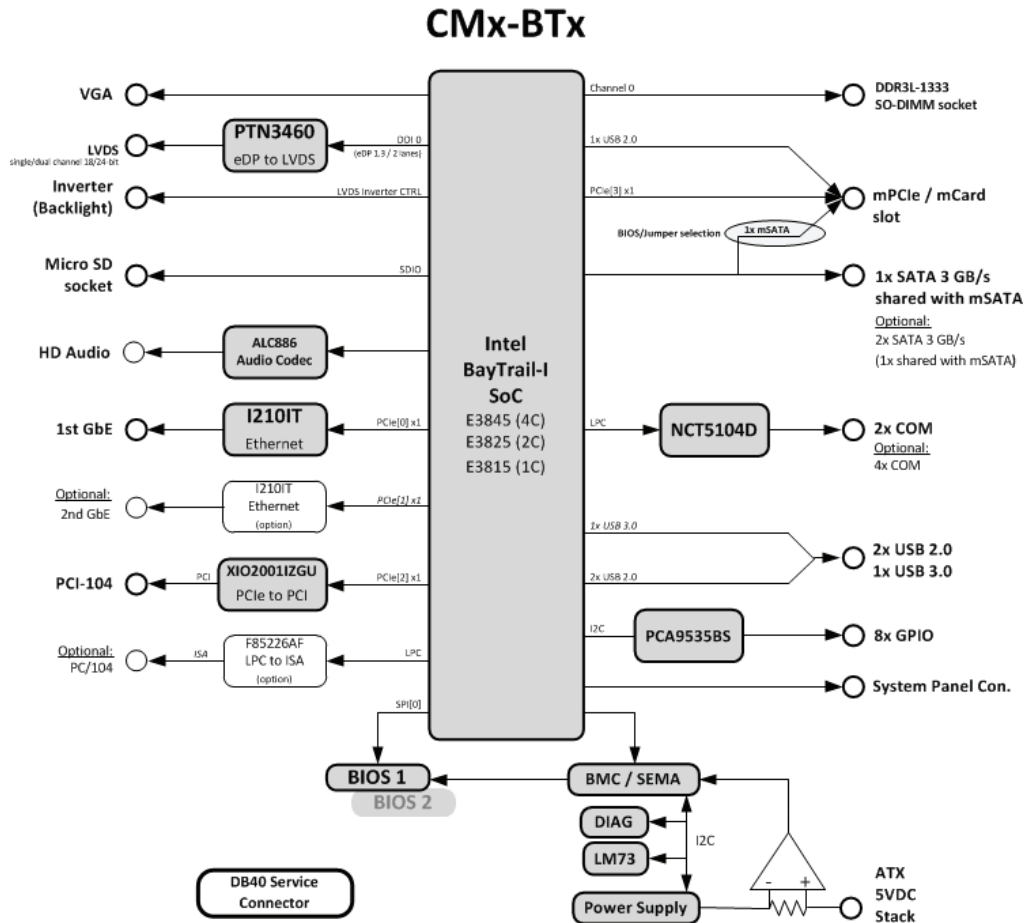
**HALT** Thermal Stress, Vibration Stress, Thermal Shock and Combined Test

### Operating Systems

**Standard Support** Windows 7/8 32/64-bit, Linux 32/64-bit

**Extended Support (BSP)** WES7/8, WEC7, Linux, QNX, VxWorks

## Functional Diagram



## Ordering Information

### Modules

Model Number	Description/Configuration
<b>CM3-BT4-E3845</b>	PCI-104, Atom E3845 (4C), 1.91 GHz, incl. heat spreader, Standard operating temperature: 0°C to +60°C

### Accessories

Model Number	Description/Configuration
<b>tbd</b>	ETT screening -40°C to +85°C
<b>CMx-BTx-X-10</b>	CMx-BTx cable kit
<b>CMx-BTx-TM-10</b>	Passive low profile heatsink for CMx-BTx
<b>CMx-BTx-TM-20</b>	Active low profile heatsink for CMx-BTx (with fan)
<b>DDR3L memory</b>	Verified 2GB, 4GB DDR3L SODIMM memory available

## CMx-BTx Standard Variant Comparison

Model Number	CM1-BT1-E3815	CM2-BT2-E3825	CM3-BT4-E3845	CM3-BT1-E3815
<b>Form factor</b>	PC/104	PC/104-Plus	PCI-104	PCI-104
<b>PCI Bus (PCI-104)</b>	No	Yes	Yes	Yes
<b>ISA Bus (PC/104)</b>	Yes	Yes	No	No
<b>CPU</b>	E3815	E3825	E3845	E3815
<b>CPU cores</b>	1	2	4	1
<b>VGA</b>	1x	1x	1x	1x
<b>LVDS</b>	1x	1x	1x	1x
<b>SATA</b>	config 1: 2, config 2: 1	config 1: 2, config 2: 1	config 1: 2, config 2: 1	config 1: 1, config 2: 0
<b>mSATA</b>	0, 1	0, 1	0, 1	0, 1
<b>mPCIe</b>	1, 0	1, 0	1, 0	1, 0
<b>MicroSD card slot</b>	1x	1x	1x	0x
<b>GbE</b>	2x	2x	2x	1x
<b>COM</b>	4x	4x	4x	2x
<b>GPIO</b>	8x	8x	8x	8x
<b>HD Audio</b>	1x	1x	1x	1x
<b>USB 2.0</b>	3x	3x	3x	3x
<b>USB 3.0</b>	1x	1x	1x	1x