

# CM2-BT2

## Extreme Rugged™ PC/104-Plus Single Board Computer with Intel® Atom™ Processor System-on-Chip

NEW



### Features

- Dual-core Intel® Atom™ Processor System-on-Chip
- Up to 4GB DDR3L at 1333MHz
- Supports VGA and LVDS
- GbE (optional 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	Dual-core Intel® Atom™ Processor System-on-Chip Atom™ E3825 (2C/1066), 1.33 GHz, 533/- (No Turbo), 6W 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	PC/104-Plus (ISA & 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 I°C, 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 Supports 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 (two lanes)
VGA	Yes

#### Audio

Chipset	Intel® HD Audio integrated in SOC
Audio Codec	ALC886

#### Ethernet

Intel® MAC/PHY Interface	1x Intel® i210 (MAC/PHY) Ethernet controller (optional 2x GbE) 10/100/1000 GbE connection
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#### I/O Interfaces

USB	2x USB 2.0 + 1x USB 3.0
SATA	1x SATA 3 Gb/s shared with mSATA (optional 2nd SATA 3GB/s port w/o mSATA support)
GPIO	8x
Serial	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

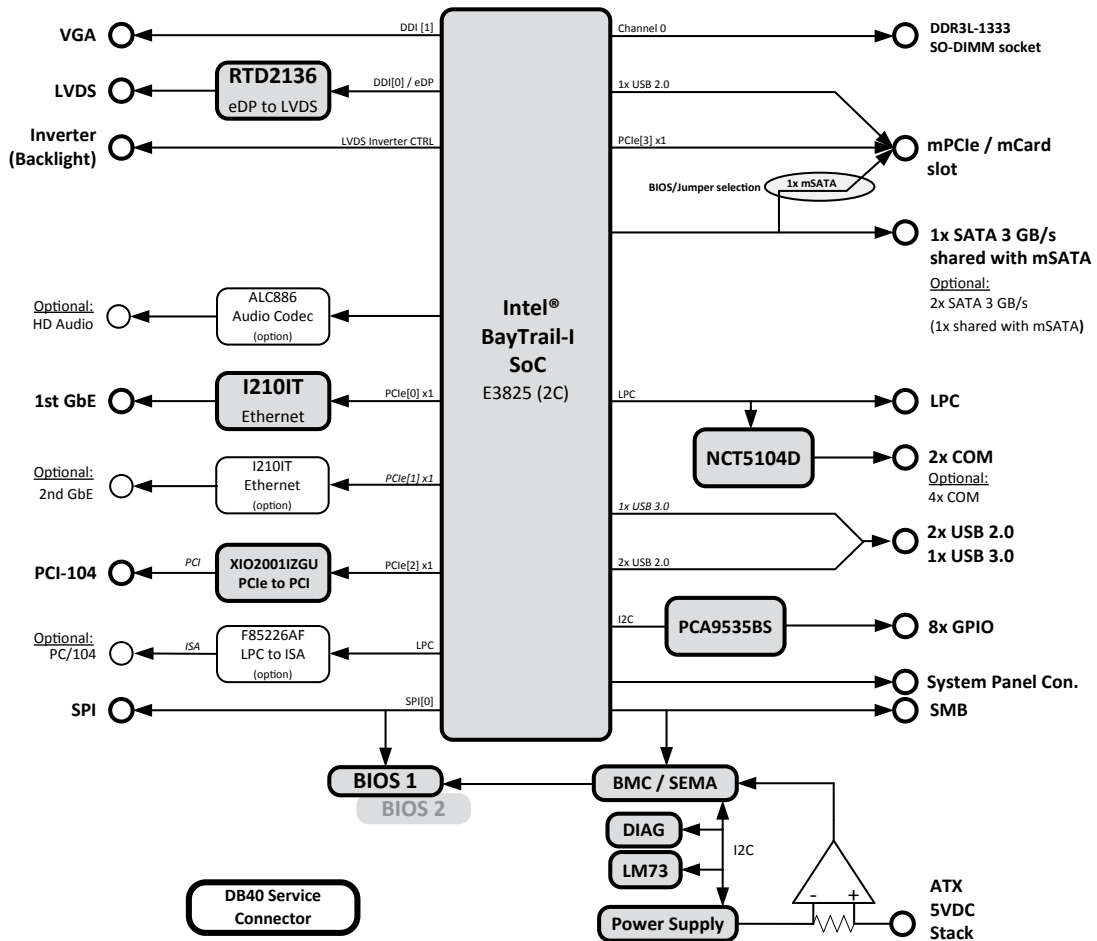
#### Mechanical and Environmental

Form Factor	PC/104-Plus Specification v2.3
Dimension	90 mm x 96 mm
Operating Temperature	Standard: 0°C to +60°C Industrial: -20°C to +70°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)	WEST/7, WEC7, Linux, QNX, VxWorks

## Functional Diagram



## Ordering Information

### Modules

Model Number	Description/Configuration
CM2-BT2	PC/104-Plus, Atom™ E3825 (2C/1066), 1.33 GHz, Dual Core, incl. heat spreader, Standard operating temperature: 0°C to +60°C

### Accessories

Model Number	Description/Configuration
	ITT screening -20°C to +70°C
	ETT screening -40°C to +85°C
CMx-BTx-X-10	CMx-BTx cable kit
CMx-BTx-TM-10	Passive low profile heatsink for CMx-BTx
CMx-BTx-TM-20	Active low profile heatsink for CMx-BTx (with fan)
DDR3L memory	Verified industrial grade 1GB, 2GB, 4GB DDR3L SODIMM memory available

## CMx-BTx Standard Variant Comparison

Model Number	CM1-BT1	CM2-BT2	CM3-BT4-8G	CM3-BT1
Form factor	PC/104	PC/104-Plus	PCI-104	PCI-104
PCI Bus (PCI-104)	No	Yes	Yes	Yes
ISA Bus (PC/104)	Yes	Yes	No	No
CPU	E3815	E3825	E3845	E3815
CPU cores	1	2	4	1
VGA	1x	1x	1x	1x
LVDS	1x	1x	1x	1x
SATA 6 GB/s shared with mSATA	1x	1x	1x	1x
SATA 6 GB/s	1x	1x	1x	0
Onboard eMMC capacity [GB]	0	0	8	0
GbE	2x	2x	2x	1x
COM	4x	4x	4x	2x
GPIO	8x	8x	8x	8x
HD Audio	1x	1x	1x	1x
USB 2.0	2x	2x	2x	2x
USB 3.0/2.0	1x	1x	1x	1x