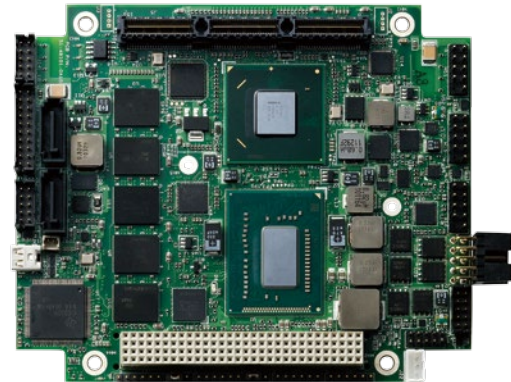


# CM-920

## Extreme Rugged™ PCI/104-Express Single Board Computer with 3rd Generation Intel® Core™ Processor

### Features

- Dual-core 3rd Generation Intel® Core™ Processor
- Up to 4GB industrial grade soldered-down ECC 1600MHz DDR3 memory
- 8GB industrial grade solid state drive (SSD)
- One PCIe x16 (Gen 3) and 1 x4 or 4 x1 (Gen 2)
- Two SATA 6 Gb/s ports, two Gigabit Ethernet, four USB 2.0 interfaces, and two serial ports
- PCI/104-Express Type 1 and PCI/104 expansion interfaces
- Extreme Rugged™ operating temperature: 40°C to +85°C
- 50% thicker PCB for high vibration environments



### Specifications

#### • Core System

##### CPU

Intel® Core™ i7-3517UE 1.7GHz (up to 2.8GHz Turbo), 4MB L3 cache, 17W, dual core

Intel® Celeron® 807UE 1.0GHz, 1MB L3 cache, 10W, single core

##### Memory

2 or 4GB single channel industrial grade solder down ECC 1600 MHz DDR3 memory

##### Embedded BIOS

AMI UEFI with CMOS backup in 16 MB SPI flash

##### Hardware Monitor

Supply voltages and CPU temperature

##### Watchdog Timer

Programmable timer range to generate RESET

##### Technologies

PAVP 3.0, Intel® AMT 8.0, Intel® VT, Intel AES-NI, Intel® HT, Intel® HD Graphics with Dynamic Frequency, Intel® Turbo Boost, Dynamic Turbo, Intel® AVX 1.0, Intel® Quick Sync Video

##### Expansion Busses

PCI/104 (32-bit 33/66MHz)

PCI/104-Express Type 1 with 1 of PCI Express x16 (Gen3) bus SMBus (system)  
2 of USB 2.0, 4 of PCI Express x1

#### • Ethernet

##### 10/100/1000Mbps

2x GbE: 1x PCH using Intel® 82579 PHY, 1x Intel® 82574 MAC/PHY

#### • Video

##### Integrated Graphics

HD Graphics 4000 at 350-1000 MHz

##### Integrated Video

DirectX 11.0, OpenGL 3.1, and OCL 1.1

##### Media Processing

Decode (HW JPEG & MJPEG decode), encode (full HW MPEG2 encode), transcode Intel® Clear Video HD Technology + enhanced media processing

##### VGA Interface

Analog VGA support with 300 MHz DAC, Analog monitor support up to QXGA (2048 x 1536) and VGA hot plug

##### LVDS Interface

Dual-channel 18/24-bit LVDS

##### Digital Display Interface

One DVI

#### • Power

##### Standard Input

5V (3.3V and 12V if required by the PCI/104-Express stack)

##### Power States

Supports S1, S4

##### Power Consumption

9W typical

#### • Audio

##### Chipset

Integrated on Mobile Intel® QM67 Express Chipset, available on HDMI port

## Specifications

- **I/O Interfaces**

**Chipset**

Integrated on Mobile Intel® QM67 Express Chipset

**USB**

Four USB 2.0 ports (plus two to the PCI/104-Express stack)

**SATA**

Two SATA 6 Gb/s with support for RAID 0,1

**Storage**

Onboard 8GB industrial grade SSD

**Serial**

Two RS-232 Serial ports implemented in LPC based Super I/O

- **Operation System**

**Standard Support**

Windows 7, Linux

**Extended Support (BSP)**

WES 7, WES 2009, WEC 7, VxWorks 6.9, QNX 6.5

- **Mechanical and Environmental**

**Form Factor**

PCI/104 Express

**Dimension**

116mm x 96mm

**Operating Temperature**

Standard: -20°C to +70°C

Extreme Rugged™: -40°C to +85°C (CPU throttling at 800MHz, no throttling to +75°C)

**Storage Temperature**

-55°C to +85°C

**Humidity**

90% at 60°C non-condensing

**Shock and Vibration**

50G peak-to-peak, 11ms duration, MIL-STD-202G Method 213B

Operating: 11.96 Grms, 50-2,000 Hz, each axis, MIL-STD-202G Method 214A

**HALT**

Thermal Stress, Vibration Stress, Thermal Shock and Combined Test

- **Intelligent Middleware**

**SEMA®**



Local management, control of embedded computer systems

Extended EAPI for monitoring, controlling and analytics applications

Multiple OS support and across platforms (x86, ARM)

## Ordering Information

- **CM-920-R-10**  
PCI-104™ with Intel® Celeron® 807UE 1.0GHz, 10W, 2GB solder down DDR3 1600 memory, 8GB SSD, 18/24 bit LVDS, VGA, HDMI, SATA, PCI
- **CM-920-R-17**  
PCI/104-Express with Intel® Core™ i7-3517UE 1.7GHz, 17W, 2GB solder down DDR3 1600 memory, 8GB SSD, 18/24 bit LVDS, VGA, HDMI, SATA, PCI Express, PCI
- **CM-920-R-18**  
PCI/104-Express with Intel® Core™ i7-3517UE 1.7GHz, 17W, 4GB solder down DDR3 1600 memory, 8GB SSD, 18/24 bit LVDS, VGA, HDMI, SATA, PCI Express, PCI
- **CM-920-L-10**  
CM-920 Quick Start Kit includes CM-920-R-10, cable kit, CM920-TM-CU. USB stick with BSP/drivers and manuals
- **CM-920-L-17**  
CM-920 Quick Start Kit includes CM-920-R-17, cable kit, CM920-TM-CU. USB stick with BSP/drivers and manuals

\*other configurations by request

## Accessories

- **CM-920-X-01**  
CM-920 cable kit (RoHS), Additional cables to be defined as required for extreme rugged pin headers
- **CM-920-TM-AL**  
PCI/104-Express with Intel® Core™ i7-3517UE 1.7GHz, 17W, 2GB solder down DDR3 1600 memory, 8GB SSD, 18/24 bit LVDS, VGA, HDMI, SATA, PCI Express, PCI
- **CM-920-R-18**  
CM-920 Aluminum Heatspreader
- **CM-920-TM-CU**  
CM-920 Copper Heatsink
- **CM-920-TM-FAN**  
CM-920 Aluminum/Copper Heatsink with Fan

## Recommended Configurations

- **CM-920-R-10 (ETT), (CC)**  
CM-920-R-10, -40°C to +85°C (optional), coating (optional)
- **CM-920-R-17 (ETT), (CC)**  
CM-920-R-17, -40°C to +85°C (optional), coating (optional)

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