

# BES Systems Ltd.

## **CMC-e Military PC Computer**

**Low Power Core Duo,  
Pentium M, 1.66GHz, or  
2.0GHz. PCI-e x 16, x4, x1  
lanes. Three PCI Slots.  
Wide Temperature Range.**



CMC-E, is a rugged Low power Intel Core Duo, Pentium M, PC computer designed for use in harsh military environment, Land, Naval, Transport Aircraft and Helicopters.

The computer includes a passive back-plane for PCI Express x 16, x 4, x1 and up to three 3/4 size PCI cards. It provides EMI/RFI and environmental protection for COTS PC boards. The computer is shock mounted.

CMC-E is capable of supporting:  
Windows® XP Professional, Windows® XP Embedded, or Windows® 2000.

### **Dimensions & Weight**

222x243.5x383.3 (WxHxL) [mm] including base. Weight approx. 12.5Kg with base.

### **Major Assemblies**

- ◆ Power Supply Assy.
- ◆ Passive back plane.
- ◆ Custom made Connector Panel.
- ◆ Removable Hard Disk (Flash Disk - Optional)
- ◆ Internal Disk (Flash Disk - Optional).

### **Video**

- ◆ NVIDIA GEFORCE 7300GT on PCI-e x 16.

### **Plug In Boards**

- ◆ MANGO DSP, Ethernet Streamer RAVEN
- ◆ EXCALIBUR EXC-4000PCI with;  
2 x TX, 2 x RX of ARINC-429,  
1 x MIL-STD-1553 Dual Redundant A+B

### **Computer Configuration**

- ◆ Processor - Dual Core, Low Power Pentium M 1.66GHz, 2.0GHz.
- ◆ Chipset - Intel 945GM.
- ◆ BUS - 667MHz FSB
- ◆ Integrated video, PCI, IDE, PCI-Express, SATA, USB.
- ◆ Memory - 1GB SODIMM DRAM
- ◆ CASHE - 2M 2nd Level Two
- ◆ SATA Hard Disk or FLASH Disk
- ◆ Ethernet - 3 x 10/100Base-T.
- ◆ USB - 2 x USB 1.1, 2.0. (UHCI and EHCI) and legacy keyboard support.
- ◆ Up to 4 x RS-232/RS-422 - Option
- ◆ Programmable Hardware Watch dog
- ◆ SATA 120GB, Removable Disk
- ◆ Voice In/Out - Option
- ◆ Phoenix Bios with ACPI 3.0 Power Management.

### **Power Supply**

The Power Supply is a Plug-In LRU with the following characteristics

- ◆ Power In:  
18-32VDC per MIL 1275B, MIL-STD-704A approx. 3Amp.
- ◆ Power Out:  
+5V 14 Amp, +3.3V 8Amp, +12V 7Amp  
-12V 1.5Amp, -5V 1.5Amp
- ◆ Hold-Up time minimum 50msec.

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## **Reliable and rugged**

The CMC-e withstands severe environmental conditions. Compact and easy to install, the unit is self-cooled and operates autonomously from a 28 VDC power source. The CMC-e uses either solid-state or hard-drive recording media, with the storage capacity for many hours of continuous operation

## **CMC-PC Construction**

The CMC-e is designed and constructed in accordance with the general requirements of MIL-STD-454.

## **Thermal Design**

The cooling of the components on the CMC-e CPU and Power Supply is accomplished by conduction through the aluminum enclosure of the unit. The cooling of the plug in boards is accomplished by circulated air.

## **Processes and Treatment**

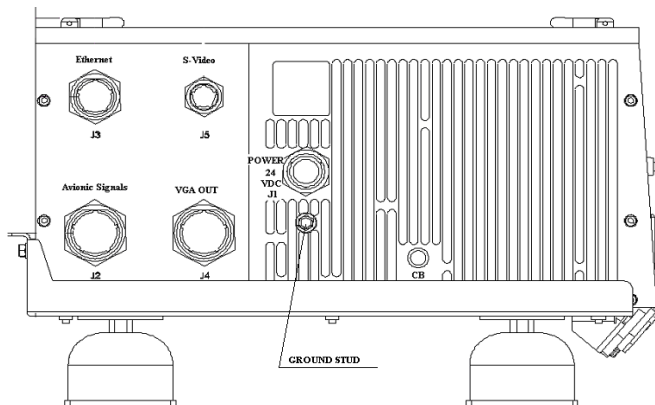
Processes and treatments (welding, soldering, brazing) and corrosion (resistance protection) of the enclosure is in accordance with MIL-STD-454.

## **Identification and Marking**

The marking and labels of the equipment meet the requirements of MIL-M-13231.

## **External Connectors**

External connectors are used for interfacing with the subassemblies or equipment and are in accordance with requirement of MIL-STD-454. Connector mating bodies are keyed, and keyed locations are varied to prevent improper installation.



## **Environmental**

### **Temperature range:**

- ◆ Operating: 0°C - 55°C with NVIDIA video.  
-20°C - 65°C (with Flash disks and video from internal 945 Chip Set;
- ◆ Non-operating: -40°C - 75°C;

**Relative humidity:** Up to 95% relative humidity, non-condensing, MIL-STD-810F Salt Fog: 5% solution per MIL-STD-810F method 509.3

**Vibrations:** MIL-STD-810F Method 514.5 Procedure I

**Shock:** MIL-STD-810F for flight equipment 40g, 11ms saw tooth

**Altitude:**

- ◆ With standard hard disks up to 15,000ft (or the equivalent atmospheric pressure), operating and non-operating
- ◆ With Flash disks up to 40,000ft (or the equivalent atmospheric pressure), operating and non-operating

## **EMI/RFI**

Per MIL-STD-461E

- ◆ CE102, conducted emissions, power leads, 10 kHz to 10 MHz.
- ◆ RE102, radiated emissions, electric field, 100 kHz to 1.0 GHz.
- ◆ RS103, radiated susceptibility, electric field, 2 MHz to 2.0 GHz.
- ◆ CS114, conducted susceptibility, DC cable injection, 10 kHz to 400MHz.

## **Fungus**

MIL-STD-810F

## **Sand and Dust**

Per MIL-STD-810F

## **Connector's Panel**

BES Customizes the Panel of Connectors per Customer's requirements.