ACR301
Intel Atom Based Rugged 3U CompactPCI Single Board Computer

The ACR301 Rugged Single Board Computer (SBC) from GE Intelligent Platforms features the ultra low power Intel Atom processor platform. Atom offers integrated graphics and memory controller plus processing up to 1.6 GHz.

Features of the ACR301 Include:
- Low power performance
- 400 MHz Graphics clock
- Four PCIe x1

The low power processor allows the ACR301 to provide substantial computing power in a compact form factor that fits into the sub 10W application space.

The ACR301 is designed to meet the requirements of a wide range of applications from industrial through to fully rugged Defence and Aerospace programs. The ACR301 also features support for CAN-bus, the communications standard designed specifically to facilitate the exchange of electronic information within a vehicle.

Available in five air- and conduction-cooled build levels, the ACR301 is fully supported by comprehensive Deployed Test Software (BIT and BCS) and OS support for VxWorks, Windows and Linux.
ACR301 Intel Atom Based Rugged 3U CompactPCI Single Board Computer

Specifications

Processor
- Intel Atom Processor
  - 0.6 GHz (E620T)
  - 1.0 GHz (E640T)
  - 1.3 GHz (E660T)
  - 1.6 GHz (E680T)
- 512 KB L2 cache
- Integrated DDR2 memory controller
- Integrated 3D graphics engine

Chipset
- Intel Platform Controller Hub EG20T

SDRAM
- 1 GByte DDR2 SDRAM soldered

Flash Memory
- Soldered NAND flash 8 GByte

BIOS
- The ACR301 BIOS and Video BIOS are provided in reprogrammable flash memory

PMC
- Up to 64 pins of PMC I/O
- 32-bit PCI bus
- See Power Allowances section for voltage information

Gigabit Ethernet
- 2 Gigabit Ethernet interfaces (One via Intel 82574 Gigabit Ethernet controller and one via I/O Chipset)
- Both ports are routed to J2

USB Ports
- Two USB 2.0 ports routed to J2
- Keyboard and mouse (PS2) emulation via USB

Fabric Interface
- 32-bit/66 MHz PCI data transfers

Serial Ports
- Two 16550 compatible full duplex async serial ports
- COM1 and COM2 routing to J2
- Ports feature independent 16-byte FIFO supporting baud rates up to 115 Kbaud

SATA
- One Gen 2 (3 Gb/s) SATA ports to J2

GPIO
- 8 GPIO pins – software configurable – to J2

Video
- Integrated Intel 3D Graphics Engine
- SVGA: 640x480 to 1600x1200 (UXGA) pixel field, 32 bits/pixel

Power requirements
- +5 V, +3.3 V
- +3.3 V [required on cPCI_J2 VBATT for RTC battery backup]

Watchdog/Timers/RTC/Temp sensors
- Two 16-bit timers and two 32-bit timers – software programmable and capable of generating PCI bus interrupts
- RTC 144818 compatible with Lithium
- CPU die and Chipset die, software readable

Transition Module
- ACR301-RTM

Software
- VxWorks
- Linux
- Windows
- Deployed Test Software (BIT and BCS)

Environmental

<table>
<thead>
<tr>
<th>Level</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooling Method</td>
<td>Convection</td>
<td>Convection</td>
<td>Convection</td>
<td>Conduction</td>
<td>Conduction</td>
</tr>
<tr>
<td>Conformal Coating</td>
<td>Optional</td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
<td>Standard</td>
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<tr>
<td>High/Low Temp</td>
<td>0 to 55°C</td>
<td>-20 to +65°C</td>
<td>-60 to +75°C</td>
<td>-40 to +75°C</td>
<td>-40 to +85°C</td>
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<tr>
<td>Operational</td>
<td>-300 ft/m</td>
<td>-300 ft/m</td>
<td>-600 ft/m</td>
<td>At cold wall</td>
<td>At cold wall</td>
</tr>
<tr>
<td>Random Vibration</td>
<td>0.002g/Hz*</td>
<td>0.002g/Hz*</td>
<td>0.04g/Hz**</td>
<td>0.1g/Hz**</td>
<td>0.1g/Hz**</td>
</tr>
<tr>
<td>Shock</td>
<td>20g***</td>
<td>20g***</td>
<td>20g***</td>
<td>40g***</td>
<td>40g***</td>
</tr>
</tbody>
</table>

**With a flat response to 1000 Hz, 6 dB/Oct roll-off from 1000 to 2000 Hz **From 10 to 1000 Hz ***Peak sawtooth 11 ms duration

About GE Intelligent Platforms

GE Intelligent Platforms, a General Electric Company (NYSE: GE), is an experienced high-performance technology company and a global provider of hardware, software, services, and expertise in automation and embedded computing. We offer a unique foundation of agile, advanced and ultra-reliable technology that provides customers a sustainable advantage in the industries they serve, including energy, water, consumer packaged goods, government and defense, and telecommunications. GE Intelligent Platforms is a worldwide company headquartered in Charlottesville, VA and is part of GE Home and Business Solutions. For more information, visit www.ge-ip.com.

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