16 Channel Gigabit Ethernet Based Controller Board (16 ch. GEBC)

PRODUCT DESCRIPTION

The 16 Channel Gigabit Ethernet Based Controller (16 ch. GEBC) board is an air-cooled board used for sensor data acquisition. The board receives information from sensors over 16 input channels. The sensor signal is conditioned, digitized and the digital samples are sent to the onboard FPGA. The FPGA performs packetisation and sends the data over Ethernet for further processing.

The board performs signal conditioning and data capturing for sonar application.

KEY FEATURES

- Automatic Gain Control (AGC)
- Manual/Programmable Gain Control (MGC/PGC)
- 256 point FFT engine on FPGA
- Onboard signal conditioning
- Sixteen channels for sensor data acquisition
- 24-bit ADC sampling up to 144 ksp/s
- Channel synchronisation within the bands with accuracy of < 50ns
- Gigabit Ethernet with Jumbo frame support
- Redundant Gigabit Ethernet interface for data

SPECIFICATIONS

FPGAs

- Xilinx Virtex-5 LX50T FPGA for processing

Interfaces

- Three Gigabit Ethernet interfaces on backplane
- JTAG and Platform Flash interface for FPGA programming
- Two input temperature sensor, 1 UART

Software / IP

- Linux Operating System ported on Virtex-5 FPGA

Additional Information

- Voltage monitoring and reset generation unit
- NOR Flash, DDR2 SDRAM memory
MECHANICAL

- Air cooled, 6U form factor, standard VME64 board
- This board is designed for conduction-cooling
- P0, P1 and P2 VME64x connectors

POWER CONSUMPTION

- The unit consumes < 25W
- Input voltage is 3.3V and 5V over VME backplane

ENVIRONMENTAL

- Qualification: Thermal cycling and random vibration
- Temperature range: −10°C and +50°C (Operational)

PART NUMBER(S)

The following variants of this board are available:

<table>
<thead>
<tr>
<th>Part Numbers</th>
<th>Variants</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH1010</td>
<td>8 Channel Gigabit Ethernet Based Controller (8 ch. GEBC) board</td>
<td>8 input channels, Air cooled, 6U form factor, VME board, 24-bit ADC sampling up to 625 ksp</td>
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<tr>
<td>CH1011</td>
<td>16 Channel Gigabit Ethernet Based Controller (16 ch. GEBC) board, Air-cooled, detailed in the above datasheet</td>
<td>16 input channels, Air cooled, 6U form factor, standard VME64 board, 24-bit ADC sampling up to 144 ksp</td>
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<tr>
<td>CH1012</td>
<td>16 Channel Gigabit Ethernet Based Controller (16 ch. GEBC) board, Conduction-cooled</td>
<td>16 input channels, Conduction cooled, 6U form factor, standard VME64 board, 24-bit ADC sampling up to 144 ksp</td>
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