Overview

KIC551 PCIe/GB Ethernet Switchboard is designed for building modular systems based on CompactPCI Serial form-factor.

Features

- CPU: Intel Pineview-D Dual Core (DS10) 1.66 GHz
- Compliance with PICMG® CPCI-S.0 R1.0, PCI Express® 3.0 specification, PCI Express® External Cabling Specification rev.1
- Compatibility with OS: Windows 7, Linux 2.6
- Dimensions: 3U: 160 mm × 100 mm , 4HP
- Power supply: +12 V
- MTBF: No less than 80 000 hours

Technical Specifications

PCle Gen 3 interface

- Support of Peer-to-Peer operating modes and Multicast
  - Possibility of flexible port configuration in x1, x4, x8 modes
  - Possibility of Upstream port switching
  - Support of switching 54 channels/12 ports PCIe Gen2/3
  - Switching of up to 8 PCIe ports, routed to the backplane with PCIe port, routed to the front panel

PCle bus extension via optical channel (for 01 version)

- Bus width – 8 x PCIe
- Support of GEN3 throughput capacity (8 Gb/sec.)
- Cable connection MPO 12 Fiber 50um MMF (2 cables)
- Maximum connection length – 50 m
- Fiber Optic maximum connection speed
  - PCI Express – 64GT/s

1 Gb Ethernet interface

- Switching of 1000BASE-T channels, routed to the backplane with 1000BASE-T on the front panel
- Durability isolation is no less than 100V for the channels, routed to the backplane
- Durability isolation is no less than 500V for the channels, routed to the front panel
- Ensuring communication of peripheral modules using the Intel AMT technology

Optical Ethernet 10 GB

- Connection of SFP+ modules
- Ensuring the speed channel for transfer of data

Configuration FPGA

- Control of incoming charge supply
- Boot support from the backup programmable read-only memory in case
- WD timer actuates
- Configuration and loading of switchboards PCIe and 1Gb Ethernet
- Support of firmware upgrade via Ethernet channels
- Indication of module operation

Supported standards

- PICMG® CPCI-S.0 R1.0 March 2, 2011
- PCI Express® 3.0 specification
- PCI Express® External Cabling Specification Revision 1.0 January 4, 2007
- PCI Express® Base Specification Revision 2.0 December 20, 2006
- SFF-8431 Specifications for Enhanced Small Form Factor Pluggable Module SFP+

Power supply

- +12 V

Maximum current consumed KIC551 from external power supply source

- 3.5 A

Corresponds to RoHS

For conduction version, the device corresponds to the groups

- 1.1, 1.2, 1.3, 1.4.1, 1.6.4, 2.1.1, 2.1.2, 2.2.1, 2.3.1 in accordance with the GOST RV 20.304-98 standard

For air-cooling version the device corresponds to the groups

- 1.3, 2.1.1, 2.1.2, 2.2.1, 2.3.1 in accordance with the GOST RV 20.39.304-98 standard

Compatibility with OS

- Windows 7
- Linux 2.6

Dimensions

- 3U: 160 mm × 100 mm , 4HP

MTBF

- No less than 80 000 hours
### Operating Conditions

#### With air cooling

<table>
<thead>
<tr>
<th>Type of exposure</th>
<th>Parameter name</th>
<th>Parameter value</th>
<th>Document</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change of temperatures</td>
<td>Low temperature</td>
<td>–40 (0°) °C</td>
<td>GOST 28209-89 (IEC 68-2-14-84)</td>
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<tr>
<td></td>
<td>High temperature</td>
<td>–85 (+70°) °C</td>
<td></td>
</tr>
<tr>
<td>Humidity</td>
<td>Relative humidity</td>
<td>Up to 80% without</td>
<td>GOST 28209-89 (IEC 68-2-14-84)</td>
</tr>
<tr>
<td>Damp heat (+55°C) (for coated devices)*</td>
<td>Relative humidity</td>
<td>Up to 93%</td>
<td>GOST 28216-89 (IEC 68-2-30-82)</td>
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<tr>
<td>Sinusoidal vibration</td>
<td>Frequency range (Hz)</td>
<td>10…150</td>
<td>GOST 28203-89 (IEC 68-2-6-82)</td>
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<tr>
<td></td>
<td>Acceleration, g</td>
<td>2</td>
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<tr>
<td>Single shocks</td>
<td>Peak acceleration, g</td>
<td>50</td>
<td>GOST 28213-89 (IEC 68-2-27-87)</td>
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<tr>
<td>Multiple shocks</td>
<td>Peak acceleration, g</td>
<td>25</td>
<td>GOST 28215-89 (IEC 68-2-29-87)</td>
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<td></td>
<td>Number of shocks</td>
<td>1000</td>
<td></td>
</tr>
</tbody>
</table>

* For commercial version

** Only for COATED versions. Only durability of device is guaranteed

#### With conduction cooling

<table>
<thead>
<tr>
<th>Type of exposure</th>
<th>Parameter name</th>
<th>Parameter value</th>
<th>Document</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elevated temperature, operating</td>
<td>+85°C</td>
<td>GOST RV 20.57.306-98</td>
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<tr>
<td>temperature</td>
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<td>standard</td>
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<tr>
<td>Elevated temperature, limit</td>
<td>+85°C</td>
<td>GOST RV 20.57.306-98</td>
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<tr>
<td>temperature</td>
<td></td>
<td>standard</td>
<td></td>
</tr>
<tr>
<td>Reduced temperature, operating</td>
<td>–55°C</td>
<td>GOST RV 20.57.306-98</td>
<td></td>
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<tr>
<td>temperature</td>
<td></td>
<td>standard</td>
<td></td>
</tr>
<tr>
<td>Reduced temperature, limit</td>
<td>–65°C</td>
<td>GOST RV 20.57.306-98</td>
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<tr>
<td>temperature</td>
<td></td>
<td>standard</td>
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<tr>
<td>Temperature change</td>
<td>From the reduced limit</td>
<td>GOST RV 20.57.306-98</td>
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<tr>
<td>temperature to the elevated</td>
<td>°C</td>
<td>standard</td>
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<tr>
<td>High humidity</td>
<td>98% at +35°C</td>
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<tr>
<td>Atmospheric precipitation</td>
<td>15 mm/min</td>
<td>GOST RV 20.57.306-98</td>
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<tr>
<td>Static dust</td>
<td>5 g/m³ at the air speed</td>
<td>GOST RV 20.57.306-98</td>
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<tr>
<td>Dynamic dust</td>
<td>5 g/m³ at the air speed</td>
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<tr>
<td>Sinusoidal vibration</td>
<td>Frequency range (Hz)</td>
<td>1–500 Hz</td>
<td>GOST RV 20.57.305-98 standard</td>
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<tr>
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<td>Acceleration, g</td>
<td>6g</td>
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<tr>
<td>Single shocks</td>
<td>Peak acceleration, g</td>
<td>75g length 1–5 ms</td>
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<tr>
<td></td>
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<td>15g length 5–15 ms</td>
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<tr>
<td>Multiple shocks</td>
<td>Peak acceleration, g</td>
<td>25</td>
<td>GOST RV 20.57.305-98 standard</td>
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<tr>
<td></td>
<td>Number of shocks</td>
<td>10 000</td>
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KIC551 Integrated PCIe and 1Gb Ethernet Switch

- RJ-45
- GN
- 1Gb PHY 88E1111
- Indication
- 10G Ethernet controller 82599EN
- Optical x8 PCIE Gen3 Transmitter
- Optical x8 PCIE Gen3 Receiver
- SFP+ Connector
- Front Panel Connectors
- 10 G Ethernet Controller Config EEPROM
- PCIE Switch 16 ports 64 lanes PEX 8764
- MUX
- PCIe Switch Config EEPROM
- Hardware Monitor LM87
- MUX
- 10 port channels Switch 1Gb 88E1140
- Ethernet Switch
- MUX
- FPGA XC6SLX25
- Module Config EEPROM
- FPGA Main EEPROM
- FPGA Backup EEPROM
- 2C MUX
- System I2C
- MUX
- 4x SGMII
- 10 port channels Switch 1Gb 88E1140
- MUX
- 1Gb PHY 88E1340S
- 4x RJ-45
- GBE Port (1)
- GBE Port (8)
- PCIe x8 (1)
- PCIe x8 (2)
- PCIe x4 (3)
- PCIe Gen2
- Power
- Power Supplies
- PCIe Express Gen 3
- PCIe Express Gen 2

http://www.fastwel.com
KIC551
3U CompactPCI S.0 PCIe/GB Ethernet Switchboard

Ordering Information

Configuration KIC551 with Air Cooling

KIC551 - 01 - C

<table>
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<tr>
<th>Configurations</th>
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<tr>
<td>KIC551-01-I</td>
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<tr>
<td>KIC551-02-C</td>
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<td>KIC551-02-I</td>
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Configuration KIC551 with Conduction Cooling

KIC551 - RC - 01 - I

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<tr>
<th>Configurations</th>
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<tbody>
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<td>KIC551-RC-01-I</td>
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<tr>
<td>KIC551-RC-02-I</td>
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KIC551 Available Options

<table>
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<tr>
<th>Coating</th>
<th>Conformal coating</th>
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<tbody>
<tr>
<td>COATED</td>
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</tbody>
</table>

Delivery checklist

KIC551 delivery checklist contains:
1. KIC551 Module
2. Packaging

Corporate Offices

FASTWEL GROUP Co. Ltd
108 Prufsguardnaya str.
Moscow, Russia 117437
Tel: +7 (495) 232-1681
Fax: +7 (495) 232-1654
E-mail: info@fastwel.com
Web: www.fastwel.com

FASTWEL Corporation US
Fastwel Corporation UK
6108 Avenida Encinas,
Suite B, Carlsbad,
CA 92011
Phone: 858-488-3663
E-mail: info@fastwel.com

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Product specifications are subject to change without notice.