**Introduction**

The DSPC-8682 integrates eight Texas Instruments TMS320C6678 multi-core digital signal processors (DSPs) each with 2GB of DDR3 1333/1600MHz 64-bit DDR3 memory, the PLX® ExpressLane™ PEX8748 PCIe Gen 3 switch, a Xilinx XC3S200AN Spartan-3 FPGA and an IDT CPS1616 Serial RapidIO Gen 2 switch to achieve the highest possible performance levels in a full-length PCIe form factor. The PEX8748 and the IDT CPS1616 interconnect x2 lanes between each DSP device. A high speed connection to the host is assured through the PEX8748 switch's PCIe x8 Gen 3 interface for the fastest possible data transfers. A HyperLink chip-to-chip interconnect interface has been implemented enabling the on-chip Navigator to transparently dispatch tasks for execution between DSP pairs.

In addition an SGMII daisy chain between all devices is connected to a Broadcom BCM5482S providing two 10G Gigabit Ethernet connections the I/O panel.

The DSP's provide fixed- and floating-point capabilities enabling the board to perform 2,048 GigaMultiply-Accumulation operations per second (GMACs) using the embedded C66x DSP cores inside the TMS320C6678 devices.

The 64 DSP cores on the DSPC-8682 make it ideal for power efficient solutions based on commercial and industrial servers needing the highest performing video processing technology on fast-to-deploy PCIe add-in cards. This raw computing power makes the DSPC-8682 a perfect fit for advanced and complex video processing such as JPEG2000 for 2K/4K processing, AVC-Intra 50/100 and AVC-Ultra, deep-color pixel manipulation, HEVC/H.265 and motion-compensated temporal filtering. It is also suited for applications in many industries such as media gateways and high performance computing.

**Specifications**

| Media Processing Elements | Eight TI TMS320C6678  
|                          | Eight TMS320C66x cores (@ 1.0GHz) per DSP  
|                          | 1024/2048 MB DDR3-1333 on board memory  
|                          | One Serial RapidIO 2.1 x2 interface up to 100Gbps plus two x1 interfaces up to 5Gbps bandwidth  
|                          | One PCI Express Gen-3 x8 edge interface  
|                          | Dual 10/100/1000Mbps Ethernet w/ SGMII  
| Host Interface | PCI Express Gen-3 x8 with PCI Express x8 edge connector  
| Ethernet | 2 x10/100/1000 Mbps Ethernet ports  
| Software Support | Host PC Linux DSP program loader  
|                  | MCSDK for TMS320C6678  
|                  | PDK for TMS320C6678  
| Power | Max. 106W  
| Cooling | Aluminum cooler with fan (4800 RPM, 19.41 CFM)  
| Physical Dimensions | 111.15 x 312 mm (4.38" x 12.28")  
|                  | 0.8 kg  
| Environment | Operating temperature: 0 to 50°C  
|                  | Humidity: 20% to 90% RH  
|                  | Storage temperature: -20 to 70°C  
|                  | Humidity: 5% to 95% RH  

All product specifications are subject to change without notice  

Last updated: 18-Oct-2012
Block Diagram

Dimensions

Unit: mm

Ordering Information

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<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>DSPC-8682G1-00A1E</td>
<td>Full-length PCI Express Card with 8 TMS320C6678 &amp; 1GB DDR3 on board memory per DSP</td>
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<tr>
<td>DSPC-8682G2-00A1E</td>
<td>Full-length PCI Express Card with 8 TMS320C6678 &amp; 2GB DDR3 on board memory per DSP</td>
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