DSP282 *Dual Intel 5th Gen Quad Core i7*

6U OpenVPX Deployed Server Platform

The Abaco Systems DSP282 is a rugged 5th generation, COTS multiprocessor that brings data center performance and scalability to deployed defense and aerospace applications.

Designed for size, weight and power (SWaP) sensitive application's, Abaco's high performance embedded computing (HPEC) platforms deliver expanded mission capabilities across a wide range of manned- and un-manned airborne, ground and naval platforms.

More GigaFLOPS , same SWaP

The DSP282 delivers up to 665.6 GFLOPS per card slot, and increased system bandwidth with two Intel® 5th gen quad Core™ i7 CPUs, up to 16 GBytes DDR3L main memory per processor, inter-node DMA over PCIe™ gen 3 and OFED RDMA InfiniBand® or Ethernet data plane via the latest Mellanox ConnectX™ -3 network interface controller (rNICs).

Planned technology insertion

Abaco launched the DSP28X platform architecture in 2011 with the DSP280 COTS Processor. Developers can leverage proven software support for this open architecture now with a clear path to the new DSP282 Intel 'Broadwell' platform to capture the latest micro-architecture/performance boost.

Open System Architecture (OSA)

Abaco Systems provides a rugged, scalable solution that builds on open standards from the wider high performance computing (HPC) and 'Big Data' communities to exploit widely used application programing interfaces (APIs), high performance middleware, libraries and productivity tools that greatly reduce cost of ownership, technical risk and time-to-deployment .

Sensor-, image- and data processing

Abaco goes further to fully exploit Intel's hyper-threaded multi-core platform with AXIS Advanced Multiprocessor Integrated Software. Developers can optimize and scale applications across Abaco's 3U and 6U OpenVPX HPEC solution sets that include Ethernet and InfiniBand SFMs, GPGPU processors, SBCs and I/O modules.

Typical applications

- Back-end sensor- and image processing
- Radar, sonar, Multi-INT
- Display and mission computing
- Data and network gateways
- InfiniBand HPC clusters
- Distributed Ethernet clusters

FEATURES:

- Two Intel® Core™ i7-5700EQ CPUs
  - Four cores, eight threads per CPU
  - Two channels ECC 1600-DDR3L
  - 16 GBytes DDR3L
  - AVX2.0 Advanced Vector Extensions
  - HD-5600 on-chip graphics

- Two platform controller hubs
  - 16 MBytes BIOS Flash per PCH
  - 16 GBytes SATA NAND Flash
  - 256 Kbytes NRAM

- Platform security
  - Configurable security hub FPGA
  - Intel Trusted Execution
  - Intel vPRO/AMT technology
  - Intel ES new instructions

- Firmware support
  - Built-in Test
  - UEFI BIOS

- Operating system support
  - Linux® SDK
  - Windows® SDK
  - WRS VxWorks® BSP
  - WRS Hypervisor

- Middleware and Libraries
  - AXISPro application dev. framework with AXISFlow and AXISmpi communication libraries
  - AXISLib VSIPL and RSPL multi-threaded DSP and math libraries for VxWorks, Linux and Windows
  - Abaco signal- and image processing quick start examples
  - Intel OpenCL SDKs, IPP and MKL

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S Y S T E M S

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Specifications

6U OpenVPX VITA65
- SLT6-PAY-4F1Q2U2T-10.2.6
- MOD6-PAY-4F1Q2U2T-12.2.1-8

Build Options
- VITA48.1-1" pitch convection cooled
- VITA48.2-1" pitch conduction cooled
- VITA48.5-1.2" pitch air flow through
  Wide temperature, extended shock
  and vibration builds – consult factory

Intel 5th Gen Core processor
- Quad core i7-5700EQ (eight threads)
- 2.4 GHz base frequency

Memory per CPU node
- 6 MBytes on-chip last level cache
- 16 GBytes DDR3L 1600 with ECC
  per CPU
- 16 MBytes BIOS, BIT and back-up Flash
- 16 GBytes SATA NAND Flash disk
- 512 Kbytes NVRAM

OpenVPX I/O planes Management:
- I2C with BMM

Data:
- 4 x Fat Pipes – InfiniBand or Ethernet
  via 2 x dual port Mellanox ConnectX-3
  FDR10 InfiniBand/40 GE RDMA NICs

Expansion:
- 2 x Double Fat Pipes or 4 x Fat Pipes
  – PCIe via PLX Tech gen 3 switch with
  inter-node DMA via NT port

Control:
- 2 x 1000Base-T and 2 x 1000Base
  SERDES with IEEE-1588 PTP (precision
  time protocol) support

User I/O:
- 2 x 1000Base-T vPRO ports, Serial, 4
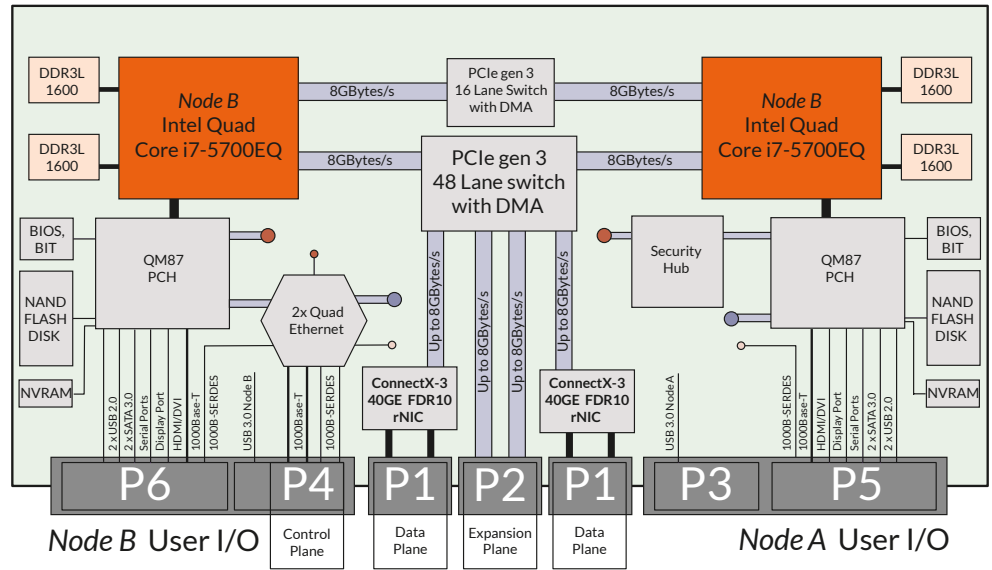 x USB-2, 2 x USB-3, 4 x SATA-3, GPIO,
  HD audio

Display:
- 2 x HDMI/DVI, 2 x DisplayPort

Front I/O:
- 2 x 1000Base-T, 2 x SATA-2, 2 x USB-2
  plus 1 x USB-2 and 1 x DisplayPort
  mixed between nodes A and B. Front
  I/O on convection cooled builds only
 via front panel transition module (FTM)
  accessory.

Block diagram

The AXISPro-01M development environment supports application optimization on multi-core, multi-threaded and multi-node distributed system architectures across multiple operating systems including Linux, Windows and VxWorks and includes quick start signal and image processing examples to accelerate time-to-solution.
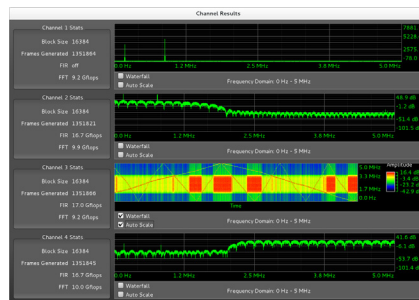
AXIS RuntimeView screen shot – multi-threaded application on dual Intel Core-7 processor.
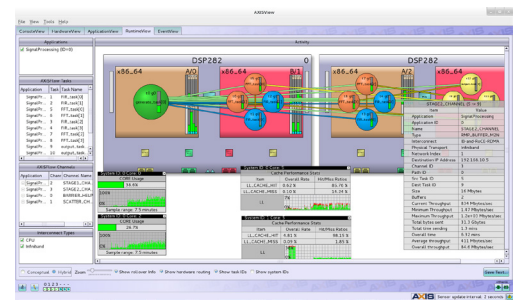
AXIS Quick Start application.

Contact Abaco Systems for pricing and availability.

WE INNOVATE. WE DELIVER. YOU SUCCEED.

Americas: 866-OK-ABACO or +1-866-652-2226   **Asia & Oceania:** +81-3-5544-3973

Europe, Africa, & Middle East: +44 (0) 1327-359444

Locate an Abaco Systems Sales Representative visit: abaco.com/products/sales

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