Product Summary

The OSP4, a fourth-generation, General Dynamics Mission Systems-developed commercial product is a single-board computer, with a 20-year service life, specifically designed to address the high-performance, real-time requirements of industrial, land, sea or airborne applications that operate under severe environmental conditions.

The OSP4 is based on the PA Semi PA6T-1682M Power Architecture® processor with 2 GB of SDRAM (with error detection/correction). It provides two levels of instruction and data cache memory and is coupled with a highly integrated System on Chip (SoC) architecture, providing enhanced performance capabilities over traditional architectures. To support the application’s non-volatile storage needs, the OSP4 includes a large complement of both Flash and NVSRAM-based memory. The design incorporates a fully compliant VITA 46/VITA 65 primary backplane and two mezzanine sites. The sites can support either IEEE 1386.1-compatible PMC (P64s) or VITA 42 XMC (X12D) mezzanine cards allowing the user to tailor the module to meet their specific needs. A fully developed, in-house software capability allows General Dynamics Mission Systems to provide rapid system solutions to the end customer using either the Wind River VxWorks® or Green Hills® INTEGRITY™ operating system.
Technical Specifications

- CPU: PA6T-1682M, Dual Core Power Architecture 970 with Vector Processing Capability (500 MHz to 1.5 GHz, Dynamically configurable)
- Performance: >1000 per core (SPECint2000)
- Performance: >2000 per core (SPECfp2000)
- Memory Bus Speed: 266 MHz (dual memory controllers)
- Data Memory (SDRAM): 2 GB DDR2
- Cache Size: 128K L1 per core, 2 MB L2 shared between cores (both contained in CPU)
- Program Memory (FLASH): 128 MB
- Non-volatile SRAM: 512 KB expandable to 2 MB
- Timers: 8 x 32-bit timers, can be cascaded
  - 1 x watchdog timer (per core)
  - 1 x RTC (time of day)
- Mezzanine Expansion: 2 dual IEEE – 1386.1 PMC P64s/VITA 42.0 XMC Slots (Conduction cooled)
- PCI Peripheral Bus Configurations Supported:
  - Both sites support PCI/PCI-X from 33 MHz 32-bit to 133 MHz 64-bit
- XMC (VITA 42.0) Configurations Supported:
  - PCI express x1, x2, and x4 support
  - VITA 46.9 / X12D configuration
- Misc I/O and Other: 2 RS-232
  - 4 RS-422/485, Full Duplex
  - 1 RS-485, Half Duplex
  - Differential Discretes (16 In/Out)
  - TTL Discretes (16 In/Out)
  - 4 Discretes Interrupts
  - RTC with Temp Sensor
- Ethernet Interface: 2 10/100/1000BASE-T
- Primary Backplane I/F: VITA 46 with VME support
  - 0.8 or 1-inch module pitch
- Module Power (Typical): 40 Watts @ 85°C card edge
- Operating Temperature: -40° to +85°C at card edge
- Non-operating Temperature: -55° to +95°C
- Sine Vibration: 10g
- Random Vibration: 7.7Grms
- Basic Shock: 30g, 11 ms
- Humidity: 100% RH condensing
- Altitude: 15,240 m (50,000 ft)
- Mass: 900g (2.0 lb)
- Supported Open VPX/ VITA 65 Profiles:
  - MOD 6-PER-4U-12.3.3-1
  - MOD 6-PER-1F-12.3.4-1

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