

ADVANCED OPEN SYSTEMS PROCESSOR 4 (OSP4)

High-performance, low-cost, real-time requirements



Dynamically alterable CPU clocks allow tailoring for optimal power and performance

Power Architecture® 970 compliant ISA provides easier software portability when upgrading

Vector processing engine supports compute-intensive applications

A full complement of memory types are fully configurable to match application needs

Compliant with open systems standards

Ethernet, serial and discrete signal interfaces support a wide range of connectivity options

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.



Power Architecture-Based Advanced Open Systems Processor 4 (OSP4)

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
 - 2 10/100/1000BASE-T or BASE-KX
- 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

GENERAL DYNAMICS
Mission Systems

For more information contact • Jonathan Giorgi • Jonathan.Giorgi@gd-ms.com • Tel 952-921-6259 • www.gdmissonsyste.ms.com

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