DuraNET 40-10

PRELIMINARY /
SUBJECT TO CHANGE

- **Up to 20-Port L2/L3 Network Router/ Fully Managed Ethernet Switch/Security Appliance**
- **Rugged Conduction Cooled 3U VPX Blade Architecture**
- **Quad-Core Freescale Management Processor & High Bandwidth Broadcom IP Packet Processor**
- **ARINC 404A ATR Chassis / Flange Mount**
- **Support for Optional 10 GigE / Optical Interfaces**

FEATURES

- **Secure Civil and Military Tactical Intra-platform Networking**
- **28V Vehicle/Aircraft C4ISR On the Move**
- **Network-Centric Operations / Situational Awareness**
- **Layer 2/3 Switching / Routing At Network Edge**

HIGH PERFORMANCE NETWORKING:

- Fully Managed Layer 2 / Layer 3 Switch / Router / Security Services Based on High Performance Freescale and Broadcom Technologies
- High Port Density – up to 20 Non-Blocking Gigabit Ethernet Ports
- Support for Optional 1 Gig / 10 Gig Ethernet Fiber Optic Interfaces
- Enterprise-Level Networking Management Software Features: Advanced Quality of Service (QoS), CLI, Web, SNMP Management, MSTP/RSTP, VLAN, IP Multicast Routing, Authentication, Port Monitoring, etc.
- Unified Threat Management System – Firewall, Network Address Translation (NAT), Access Control List (ACL) Filtering, Virtual Private Network (VPN) Secure Tunneling, Intrusion Detection System (IDS), Encryption/Decryption, Declassification/Data Zeroization Capabilities

VPX-based Technology

- SWaP Optimized Open Architecture 3U VPX Cards (VITA 46/48/65)
- Extended Temperature, Ultra-Rugged Conduction-Cooled VPX
- Reduced Maintenance VPX REDI Cover Plates Provide Enhanced ESD Protection and Level 2 Maintenance to Reduce Depot Repairs (Card can be Removed in the Field)

RUGGED DESIGN:

- Designed to MIL-STD-810G Shock, Vibe, Thermal, Altitude, Humidity
- Designed to MIL-461F Conducted/Radiated Emissions & Susceptibility
- Filtered, Transient-Protected MIL-STD-1275/704 Power Supply for Aircraft and Vehicle Use
- -40 to +71C Fanless Extended Temp Operation with No Moving Parts
- Corrosion-Resistant, Aluminum Chassis Sealed Against Water, Dust (Similar to IP67) with ½ ATR ARINC 404A Air Transport Rack Mounts or Flange Footpads
- MIL-DTL-38999 Connectors for Reliable Network Connections
- Data Zeroization Support to Erase Sensitive Information

The DuraNET 40-10 is a rugged, high-performance 10 Gigabit / 1 Gigabit Multilayer Ethernet router, switch and security appliance optimized for tactical edge IP LAN and WAN networking deployments in military / aerospace / civil applications. Integrating up to 20 ports of fully managed routing, switching, and security services in a single hardened subsystem, this robust networking solution is primed for Size, Weight, and Power (SWaP) sensitive situational awareness tech refreshes onboard aircraft, ground vehicles and maritime platforms. For maximum reliability and 2-level maintenance (2LM) field serviceability, the unit features a high-performance 3U VPX blade architecture, including a 3U VPX REDI secure router/switch card and MIL-STD-704/1275 compliant power supply line replaceable modules (LRM), as well as a spare 3U VPX payload slot to support customized system configurations (i.e. integrated Single Board Computer).

Designed to meet harsh MIL-STD-461F EMI/EMC and MIL-STD-810G thermal (-40 to +71C), shock, vibe, altitude, and ingress conditions, the unit features a passively cooled ½ ATR VPX chassis fitted with MIL-DTL-38999 connectors for up to 20 ports of copper Gigabit Ethernet connectivity or optional combinations of copper GigE together with optical Gigabit and/or 10 Gigabit Ethernet connectivity for uplinks/cascade ports. The unit features a high performance Broadcom StrataXGS multilayer packet processor and quad-core Freescale QorIQ management processor with built-in hardware security engine together with Freescale VortiQa enterprise-class network software to provides robust and secure network connectivity. Supported features include: L2/L3 switching and routing, stateful firewall & NAT, IPsec virtual private network (VPN), Quality-of-service (QoS) device and traffic management, and high availability, among others. This advanced networking software is fully integrated with the QorIQ processor architecture to leverage hardware acceleration functions and deliver optimum network performance under both normal and stressed network conditions.

Parvus

Specifications

SYSTEM ARCHITECTURE	• Packet Processor: Broadcom StrataXGS III Multilayer (L2/L3) Switch • Switching Architecture: Non-Blocking OSI Data Layer 2 / Layer 3, Low-Latency, Auto-MDI/MDIX, Auto-Negotiation, Auto-Detect; Speed Auto-Sensing, Auto-Crossover, Full/Half Duplex Modes • Management Processor: Freescale 4-Core QorIQ P4080 w/Integrated Security Engine • Networking Software: Freescale VortiQa Software for Enterprise Network Equipment on SMP Linux • Board-Level: 3U VPX Router/Switch and 3U VPX DC/DC Converter (VITA 46/48/62/65) • Mechanical: 3-Slot Conduction Cooled 3U VPX Chassis, ARINC 404A Tray Mount / Flange Mount
PORT CONFIGURATIONS	• 20 Ports: 20x 1000BaseT Copper Gigabit Ethernet (1000Mbps per Port) • Special Order Options: - 16x 1000BaseT Copper GigE + 4x 1000Base-SX Optical GigE - 16x 1000BaseT Copper GigE + 1x 10GBase-SR Optical 10 GigE - 12x 1000BaseT Copper GigE + 4x 1000Base-SX Optical GigE + 1x 10GBase-SR Optical 10 GigE - 12x 1000BaseT Copper GigE + 2x 10GBase-SR Optical 10 GigE
SOFTWARE CONFIGURATIONS	• L2 Unmanaged Switch • L2 Managed Switch • L2/L3 Managed Switch & Router • L2/L3 Managed Switch & Router with Enhanced Security
LAYER 2 SWITCHING	• Basic Protocols: IP, TCP, UDP, ARP, ICMP, TFTP, BSD Sockets • Flow Control (per IEEE-802.3x), Rate Limiting on Each Port, Broadcast Traffic Storm Control • Quality of Service (QoS)/Class of Service (801.1p CoS) Traffic Prioritization and Queuing • Spanning Tree: STP (IEEE 802.1d), RSTP (IEEE 802.1w), MSTP (IEEE 802.1s) • VLAN Bridging (IEEE-802.1Q); Static, Port-Based, Dynamic, Tagged, Protocol-based VLAN • IGMP, MLD & DVMRP Snooping (RFC 4541); Multicast Services via GARP, GMARP, GVRP • IEEE-1588 Precision Time Protocol (PTP); Link Aggregation (IEEE 802.3ad) and Port Mirroring
MANAGEMENT / AUTHENTICATION	• In-Band Ethernet Management Support & Dedicated Out-of-Band 10/100 Ethernet Port • Command Line Interface (CLI) for Telnet /SSH/Terminal Management over RS-232 Console • HTTP/HTTPS Web GUI – Username/Password/Certificate Authentication, TLS for HTTPS Access • SNMP v1v2v3 Protocol Agents with MIB-II and Notifications Support; RMON Support • DHCP Client; RADIUS Client; PPPoE, PPP, PAP, CHAP; LDAP Authentication • PING and TELNET Diagnostic Functions, Syslog Event Logging and Audit Trail Support • Built-in-Test (BIT) Self-Diagnostics- Power-On BIT(PBIT), Continuous BIT(CBIT), Initiated BIT(IBIT)
LAYER 3 ROUTING	• IPv4 and IPv6 Support • Unicast Routing: OSPF v2, RIP v1/v2, RIPng, BGP v4, IS-IS • Multicast Routing: IGMPv1/v2, PIMv1/v2, IGMP Filtering for Multicast Authentication, Inter-VLAN IP Routing, IP Policy-Based Routing (PBR), Network Address Translation (NAT) Routing
SECURE ERASE	• Secure Memory Data Zeroization Supports Recoverable, Non-Destructive Declassification
ENHANCED SECURITY	• Hardware Assisted Unified Threat Management (UTM) System: Virtual Private Network (VPN) with Secure Tunneling (IPSec/PPTP/L2TP) Support, Stateful Packet Inspection Firewall, Standards-based Cryptographic Functions (Encryption, Decryption, Authentication, Key Generation), Intrusion Detection System (IDS) and URL Keyword Content Filtering, Access Control Lists (ACLs)
POWER	• 28Vdc Aircraft / Vehicle Power Input Voltage (18V to 33VDC Continuous); Chassis Ground on Panel • Transient Protections for 250V Spike, 100V Surge (per MIL-STD-704F, MIL-STD-1275D) • 3U VPX Power Supply Line Replaceable Module (VITA 62 Connector) • Power Consumption: <75 W Maximum Estimated
PHYSICAL	• Dimensions (LxWxH): 11.75" (29.85cm) x 4.87" (12.37cm) x 4.91" (12.47cm), Excluding Connectors • Form Factor: Sub ½ ATR Short (Standard ½ ATR Width with Reduced Height and Depth) • Installation: Removable 4x Side Flange Mounts or ARINC 404A Modified ½ ATR Mounting Tray • Weight: Estimated at <10 lbs (4.54 kg) • Degree of Ingress Protection: Similar to IP67 / NEMA 6 (Dust Proof, Water Proof) • Connectors: MIL-DTL-38999 Series III, Electroless Nickel Finish (Other Finishes by Special Order) • Chassis: Aluminum Alloy, Corrosion Resistant, Watertight O-rings, Black Anodize (MIL-A-8625) • 2-Level Maintenance: ESD-Protected VPX REDI Cards Removed from Rear (w/Captive Hardware) • Cooling: No Fans or Cold Plate Required; Passively Cooled via Natural Convection
ENVIRONMENTAL	Designed to Meet MIL-STD-810G (Qualification Testing Pending) • Operating Temperature: -40° to +71°C / -40° to +160°F (MIL-810G, Methods 501,502) • Storage Temperature: -40° to +85°C / -40° to 185°F (MIL-810G, Methods 501,502) • Shock: 40g Operating, 75g Crash Hazard Shock (MIL-STD-810G, Method 516) • Random Vibration: 3 Axes per Jet/Helo/Tracked Vehicle Profile (MIL-STD-810G, Method 514) • Humidity: Up to 95% RH @ 40C, Non-Condensing (Conformal Coated PWBs) • Water Immersion: 1 Meter, 30 Minutes (MIL-STD-810G, Method 512) – Similar to IPX7 (Water-Proof) • Blowing Dust: per MIL-STD-810G, Method 501.5 (Qual by analysis) – Similar to IP6X (Dust-Proof) • Altitude: 25,000 ft (7,620 m) Operating; 40,000 ft (12,192 m) Storage - MIL-810G, Method 500
EMI / EMC	Designed to Meet MIL-STD-461F (Qualification Testing Pending): • Conducted Emissions, CE102, Power Leads, 10 KHz to 10MHz, basic curve • Conducted Susceptibility, CS101, Power Leads, 30 Hz to 150 KHz, Curve 2 (28V and Below) • Radiated Emissions, RE102, Electric Field, 10 KHz to 18 GHz, Figure RE102-3 • Radiated Susceptibility, RS103, Electric Field, 2MHz to 18 GHz, 200 Volts per Meter
RELIABILITY	• No Moving Parts. Assembled to IPC-A-610 Class III Workmanship • MTBF: TBD per MIL-HDBK-217F
CABLE SET	Breakout Wiring Harness Set for Lab / Testing (Mating MIL-38999 to Commercial RJ-45/DB9/Power)

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