

# Parvus<sup>®</sup> DuraMAR<sup>®</sup> 6300

Rugged Miniature 6-port GigE Cisco<sup>®</sup> IOS-XE<sup>®</sup> Router Integrating Cisco ESR-6300 and Edge Compute Capabilities

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## Key Features

- Ultra-rugged Cisco ESR-6300-based secure network router/switch
- 6 x GbE ports (2 x WAN, 4 x LAN)
- Cisco IOS-XE Network Essentials or Network Advantage software
- SWaP optimized:
  - + Small size: ~55 in<sup>3</sup> in volume
  - + Lightweight: ~ 2 lb (0.91 kg)
  - + Low-power: < 25 watts (est)
- Waterproof IP67 chassis with circular MIL-performance connectors
- MIL-1275/704/DO-160 power supply for aircraft and ground vehicles
- MIL-STD-810G, MIL-STD-461F and DO-160 qualifications
- Supports Layer 3 CNSA / IPSEC encryption, VPN, Firewall, NAT, QoS, MANET, RAR

## Applications

- Civil/military network routing and switching
- Multi-core embedded edge computing
- Fixed/rotary wing (un)manned aircraft
- Tactical ground vehicles
- Outdoor/underground platforms

## Overview

The [Parvus DuraMAR 6300](#) is a rugged commercial off the shelf (COTS) secure mobile network router integrating Cisco's ESR-6300 embedded services router (ESR) card and Cisco IOS-XE software in an ultra-rugged chassis optimized for harsh military and civil vehicle/aircraft installations. Packaged in a miniature IP67-rated fanless enclosure with MIL-performance circular connectors, this ultra-small form factor (USFF) IP router provides six (6) Gigabit Ethernet (GbE) ports, including 2x routed (WAN) and 4x switched (LAN) interfaces. Delivering up to 1 Gigabit/sec network throughput per port, the 6300 provides up to 10x the routing/switching bandwidth and up to 20x faster encrypted bandwidth than legacy ESR-5915-based routers. The unit also packs in new capabilities for Cisco IOx (IOS+Linux)-based edge computing services with optional SSD, USB, and serial interfaces to leverage on-board computing resources to analyze, secure and share data from embedded Internet of things (IoT) sensors at the network edge.

Supporting CNSA Next-Gen Encryption algorithms, VPN, firewall, secure boot, and other advanced security technologies, the DuraMAR 6300 is an ideal solution for size, weight and power (SWaP)-sensitive military and aerospace IP networking applications deploying secure network backbones at the tactical network edge (including airborne, ground, manned or unmanned vehicle, and sensor applications). Pre-qualified to the widest range of MIL-STD environmental and EMI tests for a COTS product, the DuraMAR 6300 supports full water immersion, wide temperature operation over -40 to +71C (-40 to +160F) without fans, 40Gs operational shock, 75Gs crash hazard shock, random vibration for fighter jets, attack helicopters and armored tanks, operation at altitudes of 50,000 ft (15,240 meters), and many other demanding environmental and EMC compliance tests. The unit features a military-grade power supply compatible with aircraft and ground-vehicle voltage transients, including MIL-STD-704 power hold-up capacitance for aircraft power transfers.

This robust networking solution leveraging Cisco's IOS-XE software and the latest in performance, cybersecurity, quality of service (QoS), and manageability that enterprise and government customers expect from Cisco technologies. The familiar Cisco IOS -XE software minimizes IT staff training requirements and provides extensive support for IPv4/IPv6 routing protocols, IP multicasting, radio aware routing (RAR), remote VoIP, Firewall, VPN, mobile ad hoc networking (MANET), and Mobile IP routing for connectivity in comms on the move (COTM) apps.

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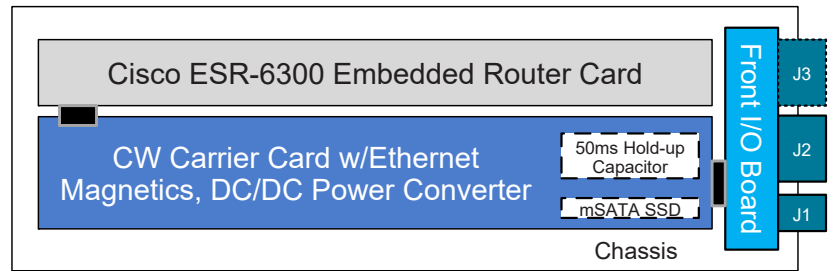


Figure 1: DuraMAR 6300 block diagram

## Features and Specifications

### Cisco Technology

- Integrated Cisco ESR-6300 embedded router card (industrial temp, MIL-810 qualified, long lifecycle guarantee)
- Cisco IOS-XE Network Essentials or Network Advantage software with options for throughput licenses and CME IP phone licenses
- Support for concurrent data, video, and voice services, firewalling, hardware accelerated encryption, and IOx-based edge computing (hosting apps in containers with Linux)

### Connectivity and I/O

- J1 connector: power input
- J2 connector: Ethernet, console, zeroize
  - + 2 x GbE WAN (routed)
  - + 4 x GbE LAN (switched)
  - + USB 2.0 console
  - + Zeroize discrete
- J3 connector (optional): Fog computing USB/Serial
  - + USB 3.0 Host port
  - + RS-232 asynchronous serial port

### Rugged Mechanical Design

- MIL-STD-810 and DO-160 environmental compliance: shock, vibration, thermal, altitude, humidity, ingress
- MIL-STD-461 and DO-160 EMC compliance: conducted/radiated emissions and susceptibility
- -40 to +71°C fanless extended temp operation
- Corrosion-resistant, aluminum chassis sealed against water, dust (similar to IP67)
- Circular, micro-miniature MIL-DTL-38999-like connectors for reliable I/O connections
- Filtered, transient and EMI-protected MIL-STD-1275/704/DO-160 compliant power supply for aircraft and vehicles with 50ms hold-up

## Target Applications

- Rugged embedded IP networking on-board military and civil aircraft, ground vehicle, and maritime platforms with SWaP constraints and harsh temperature, shock, vibration, altitude, dust, water, humidity and EMI
- Layer 3 IP network routing and Layer 2 LAN Ethernet switching for IP-enabled tactical equipment (i.e. mission computers, cameras, sensors, radios, satcom modems, and vehicle command-and-control equipment)
- Applications with specialized network cybersecurity requirements, including red (declass) / black (classified) network separation and commercial CSfC / Next-Gen CNSA (NSA Suite B) encryption
- Extending ubiquitous Cisco Systems IOS networking infrastructure into mobile embedded networking platforms for C4ISR situational awareness and to reduce IT staff training and support costs (leveraging familiarity with Cisco technology)
- Technology migration path for Cisco ESR-5940, ESR-5921, ESR-5915, and DuraMAR 5915 routers for faster routing/switching throughput, reduced system SWaP, and extended lifecycle
- Commercial and military aerospace platforms requiring US EAR-exportable solution (ITAR-free) with compliance to MIL-STD-810, MIL-STD-461, MIL-STD-1275, MIL-STD-704, RTCA/DO-160, MIL-STD-1472, CE Mark, IP67
- Remote IP telephony on vehicles or outdoor locations using Cisco Unified Communications Manager Express (Unified CME)
- Addressing dynamic on-the-move operations for ad-hoc mobile network (MANET) connectivity with UHF, VHF, and tactical radio devices
- Cisco IOx-based edge computing (aka fog computing) – enabling Cisco IOS + Linux-based application deployment using on-board computing resources to analyze, secure, and share data from embedded Internet of things (IoT) sensors at the edge of the network

See Cisco ESR-6300 IOS-XE documentation for complete list of supported software features

## Routing

- IPv4 and IPv6 routing, unicast, and multicast
- Baseline routing protocols (supported in both IOS-XE Network Essentials and Advantage licenses): Routing Information Protocol Versions 1 and 2 (RIPv1 and RIPv2), Open Shortest Path First (OSPFv2 and OSPFv3), Border Gateway Protocol (BGP), Enhanced Interior Gateway Routing Protocol (EIGRP), Intermediate System to Intermediate System (IS-IS), Hot Standby Router Protocol (HSRP), Link Aggregation Control Protocol (LACP), Network Address Translation (NAT)
- Advanced features (available in Cisco IOS-XE Network Advantage license only):
  - + Dynamic Link Exchange Protocol (DLEP), Multiprotocol Label Switching (MPLS), Mobile IP, Bidirectional forwarding Detection (BFD), Mobile IP, Resource Reservation Protocol (RSVP), Remote Source Route Bridging (RSRB), Synchronous Data Link Control (SDLC), IP Service-Level Agreement (IP SLA), Serial Tunneling (STUN), OSPFv3-RRR, OSPFv3 Nonstop Routing (NSR), Advanced OSPF, XNS, xConnect, Virtual Forwarding Interface (VFI), OSPF Mobile Ad Hoc Network (MANET), Layer 2 Tunneling Protocol v3 (L2TPv3)
- Cisco throughput licenses cap normal and encrypted aggregate routing throughput at up to (a) 50Mbps, (b) 250Mbps or (c) >250Mbps (un-throttled). Depending on packet size, with uncapped license, up to 2Gbps aggregate port routing throughput can be supported. Line-rate Gigabit Ethernet (up to 1000Mbps) switching is supported on 4x ports.

## QoS

- Quality of service (QoS) for low-latency routing and traffic precedence for delay-sensitive and mission-critical data
- Low Latency Queuing (LLQ), Weighted Fair Queuing (WFQ), Class-Based WFQ (CBWFQ), Class-Based Traffic Shaping (CBTS), Class-Based Traffic Policing (CBTP), Policy-Based Routing (PBR), Class-Based QoS MIB, Class of Service (CoS) to Differentiated Services Code Point (DSCP) mapping, Class-Based Weighted Random Early Detection (CBWRED), Resource Reservation Protocol (RSVP), Real-Time Transport Protocol (RTP) header compression (cRTP), Differentiated Services (DiffServ), QoS pre-classify and pre-fragmentation, Hierarchical QoS (HQoS)

## Switching

- Wire-speed 1000Mbps switching throughput
- Non-blocking OSI data Layer 2/3 switching, IPv4/IPv6 multicast, low-latency, auto-MDI/MDIX, auto-negotiation, auto-detect, speed auto-sensing, auto-crossover
- IEEE 802.3: .3/.3u/.3ab (10/100/1000 Base-T)

- IEEE 802.1: .1D/.1s/.1w Spanning Tree, Rapid Spanning Tree, Multiple Spanning Tree (STP, RSTP, MSTP), .1q Virtual Local Area Networks (VLAN), Private VLAN (PVLAN), VLAN Trunking Protocol (VTP) .1p Class of Service (CoS) prioritization, .1x Port Access Authentication, .3ad Link Aggregation Control Protocol and .1A BLLDP server, Cisco Mobile NAT traversal over mobile IP

## Management and Monitoring

Enterprise Cisco IOS-XE software options:

- Network Essentials – for core routing and security (FlexVPN, VRF, VLAN, crypto tunnels, IPsec, IKEv2, ssl-vpn, DHCP, SNMP, MIB, QoS, ACLs, EIGRP, IGMP, HTTP, IP Multicast, Radius, TACACS, basic OSPF, OSPFv3, RIP, IS-IS, HTTP, HSRP, STP, 802.1X, AAA, ARP, Cisco Discovery Protocol, CLNS, HQF, iEDGE, NAT, NTP, Cisco Networking Services, Cisco Configuration Professional, raw sockets, Call Home)
- Network Advantage – for advanced routing and app-based policy management (Networking Essentials features + MPLS, MPLS BFD, BFD, BGP Ethernet VPN, OSPFv3-RRR, OSFP NSR, XNS, xConnect, VFI, RSVP, SDLC, IP SLA, TCP optimization, Mobile IP, OSPF MANET, L2TPv3, DMVPN, PBR, PFR, App-aware QoS policies and troubleshooting)
- GUI and Command Line Interface (CLI) - in-band management over Ethernet or out of band via console
- SNMPv2/v3, Telnet, RADIUS, TACACS+, Cisco Service Assurance Agent, Syslog, response time reporter, NTP client, TFTP client and server, HSRP
- Dynamic Host Configuration Protocol (DHCP) server, relay, and client
- VLAN: Virtual LAN logical segmentation of network for optimal use of bandwidth



Figure 2: Front view, base router config (without optional J3 connector)

## Security

- Secure connectivity:
  - + Secure Sockets Layer (SSL) VPN for secure remote access
  - + Hardware-accelerated encryption with minimal impact to system performance
  - + Commercial National Security Algorithm (CNSA) Next Generation Encryption (NGE) and Quantum Computing Resistant (QCR) algorithms such as AES-256, SHA-384, and SHA-512 Public-Key-Infrastructure (PKI) support
  - + 20 IPsec tunnels
  - + Cisco Easy VPN Solution client and server
  - + NAT transparency
  - + Dynamic Multipoint VPN (DMVPN) - Network Advantage IOS-XE only
  - + Tunnel-less Group Encrypted Transport VPN
  - + Flex VPN
  - + IPsec stateful failover
  - + VRF-aware IPsec
  - + IPsec over IPv6
- Cisco IOS Firewall: Zone-based policy firewall, VRF-aware stateful inspection routing firewall, stateful inspection transparent firewall, advanced application inspection and control, secure HTTP (HTTPS), FTP, Telnet Authentication Proxy, Dynamic and static port security, firewall stateful failover, VRF-aware firewall
- Anti-tamper provisions for Secure Boot: Trust Anchor module (TAM) signs image, performs Secure Boot and runtime defences to ensure running code is authentic, unmodified, and operating as intended
- Declassification: data zeroization support to erase nonvolatile Flash memory and return device to factory default configuration
- Authentication: route, PAP, CHAP, MS-CHAP local password, IP access lists, time-based ACLs

Note: Security capabilities comes standard in Network Essential IOS-XE license, but additional license required to define throughput for normal/encrypted traffic: (a) 50Mbps "Default", (b) 250Mbps "Performance" or (c) >250Mbps "Boost" uncapped throughput licenses. Encrypted throughput max estimated at approx. 440Mbps. Switch ports support Gigabit (1000Mbps) line rate throughput.

## Information Assurance

- CNSA support in Cisco IOS-XE software cryptography (CNSA replaces NSA Suite-B)
- Data zeroization support (to restore settings to factory defaults)
- Cisco ESR-6300 slated for various pending cyber evaluations, including:
  - + US Department of Defense DISA UC APL (Unified Capabilities Approved Product List)
  - + Federal Information Processing Standard (FIPS) 140-2 Level 1 approval
  - + NIAP Common Criteria Evaluation and Validation Scheme (CCEVS) product validation
  - + National Security Agency (NSA) Information Assurance Directorate (IAD)'s Commercial Solutions for Classified (CSfC) program
- Depot-removable mSATA SSD option for IOx deployment

## Mobility

(available in Network Advantage IOS-XE only)

- Radio aware routing (RAR): optimize IP routing over fixed / temporary radio networks, factor radio link metrics into route calculations, and immediately recognize/adapt to changes in network neighbor status via Dynamic Link Exchange Protocol (DLEP), Router Radio Control Protocol (R2CP), RFC 5578
- MANET: OSPFv3/EIGRP enhancements for mobile temporary networks via PPPoE extensions
- Mobile IP routing: transparent roaming for mobile networks, enabling mission-critical applications to stay connected, even when moving between networks; assigned IP addresses to the home network are maintained in private and public networks; supports Proxy Mobile IP (PMIPv6) and Network Mobility (NEMO)

## Voice Services

(optional add-on per phone license)

- Cisco Unified Communications Manager Express (Unified CME) to implement primary or backup telephony services for remote command-and-control communications
  - + CME user license required per phone (up to 48 phones max)

## Edge Computing

(Internal mSATA SSD required to host applications)

- Deploy a secure, decentralized computing “cloudlet” for small-scale cloud services close to C4ISR assets to enhance situational awareness and reduce latency to make decisions faster - as enabler for Internet of military/ battlefield of things (IoMT/IoBT). (Optional mSATA SSD is required to host applications; USB and RS232 interfaces on J3 connector are optional)
- Overview: the Cisco ESR-6300 has provisions for hosting applications in containers within the Cisco® IOx application environment to combine IoT application execution within the fog, secure connectivity with Cisco IOS® software, and powerful services for rapid, reliable integration with Internet of things (IoT) sensors and the cloud. By bringing application execution capability to the source of IoT data, customers overcome challenges with high volumes of data and the need for automated, near-real time system responsiveness.
- Hardware resources:
  - + Processor: ARM quad-core A72 CPU, 1200MHz
  - + RAM: 4GB DDR4 DRAM-ECC
  - + Storage: 4GB eMMC flash on ESR-6300 card + 100GB mSATA SSD if deploying IOx applications
  - + Network: 6x GbE Ethernet interfaces
  - + Console: USB 2.0 interface
  - + Optional J3 connector interfaces: USB 3.0 host port, RS-232 async serial port with flow control
- Cisco IOx software development environment (SDE):
  - + Cisco IOx allows application developers to work in the familiar Linux application environment with choice of languages and programming models with familiar open-source development tools.
  - + IOx SDK and development tools help developers package applications for execution on IOx-enabled network infrastructure products.



Figure 3: DuraMAR 6300 with optional J3 connector populated to support IOx edge compute applications using USB/serial interfaces

## Physical Specifications

- Weight (estimated): 2.0 lb (0.90 kg)
- Dimensions (L x W x H), excluding connectors and mounting feet (estimated): 5.2” x 5.4” x 2.0” (13.2 x 13.6 cm x 5.1 cm)
- Enclosure/finish: corrosion resistant, aerospace-grade aluminium alloy with black anodize per MIL-A-8625, Type II, Class
- Grounding: masked mounting holes on bottom
- Cooling: passive, natural convection (fanless)
- Ingress protection: dust and water proof (similar to IP67)
- Connectors: Rugged circular MIL-DTL-38999-like connectors (High-density 801-series; 50%+ smaller/lighter than traditional 38999s)
  - + J0: Power Input
  - + J1: 6x GbE Ethernet + USB 2.0 Console + Zeroize
  - + J2 (optional): USB 3.0 + Async RS-232
- Installation: base flange mount (4 x holes)

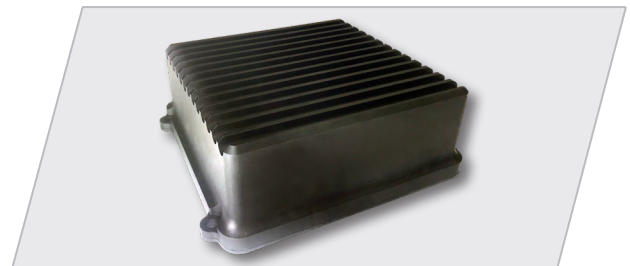


Figure 4: DuraMAR 6300, rear view



Figure 5: DuraMAR 6300, side view

## Power Compliance

- 28 VDC nominal power; input range: approx. 9 to 35.5 VDC
- MIL-STD-704F 28 VDC compliant for aircraft electrical operation: over/under voltages, spikes, surges for normal, transfer, abnormal, emergency, starting, and power failure
- MIL-STD-1275D 28 VDC compliant for ground vehicle operation: steady state DC voltage variations, no fault/single fault conditions, ripple voltage susceptibility on input power leads, imported voltage spikes, overvoltage and under voltage surges, starting disturbances, ESD immunity
- RTCA/DO-160 compliant for aircraft operation (Sections 16-18, 25): power input, voltage spikes, audio frequency conducted susceptibility-power inputs, electrostatic discharge
- Power consumption (estimated): <25 watts
- 50 ms power hold-up capacitance (per MIL-STD-704) for aircraft power switch-over

## Environmental Compliance

Designed to meet MIL-STD-810G and RTCA/DO-160G (formal qualification testing pending):

- Operating temperature:
  - + -40 to +71°C (-40 to +160°F) ambient (per MIL-STD-810G Methods 501.5 and 502.5)
  - + -40 to +70°C (per DO-160G, Section 4 Category A2 and D2 and Section 4.5.5, Category V/Table 4-1)
- Storage temperature:
  - + -55 to +85°C (per DO-160G, Section 4, Cat. A2)
  - + -40 to +85°C (-40 to +185°F) per MIL-STD-810G Method 502.5 and Method 501.5
- Humidity (operating/transport):
  - + Up to 95% RH @ 40°C, non-condensing (per MIL-STD-810G, Method 507.5, Proc II) DO-160G, Section 6, Cat B, Sect 6.3.2
- Operating shock:
  - + 40g, 11 ms, 3 pos/neg per axis, 18 terminal peak shock pulses per MIL-STD-810G Method 516.6, Procedure I
  - + 6g, 11 ms, terminal peak shock pulses (per DO-160G, Section 7, Class A)
- Crash hazard shock:
  - + 75g, 11 ms, 12 terminal peak shock pulses, 2 pos/neg per axis (per MIL-STD-810G Method 516.6, Procedure V)
- Random vibration:
  - + Combined jet-helo-tracked vehicle profile, 3 axes, 1 hour/axis (per MIL-STD-810G, Method 514, Procedures I-II)
  - + DO-160G Sect. 8, Category S, Curve B3

- Ingress (dust/sand):
  - + No ingress (qual by analysis; designed for compliance to IP6X, MIL-STD-810G Method 510.5, Proc. I and II, DO-160G, Sect 12, Cat S)
- Water immersion:
  - + No leakage per 1 meter submersion, 30 minutes (per MIL-STD-810G, Meth. 512.5, Proc. I; similar to IPX7)
- Operating altitude:
  - + 50,000 ft (15,240 meters) per DO-160G, Section 4, Category D2, Section 4.6.1 and MIL-STD-810G, Method 500.5, Procedures I-II
- Storage altitude:
  - + 60,000 ft (18,288 meters) per MIL-STD-810G, Method 500.5, Procedures I-II

## EMI/EMC Compliance

Designed to meet MIL-STD-461F, DO-160, and CE Mark (formal qualification testing pending):

- Conducted emissions:
  - + MIL-STD-461F, CE102, power leads, 10 KHz to 10 MHz, basic curve, Figure CE102-1
  - + DO-160G Sec. 21; conducted RF emissions, 150 kHz to 152 MHz, Category L; Figures 21-1, 21-2
  - + EN 55022 Class A (power line conducted emissions)
- Conducted susceptibility:
  - + MIL-STD-461F, CS101, power leads, 30 Hz to 150 KHz, Curve 2, Figure CS101-1 (28V and below)
  - + MIL-STD-461F, CS114, bulk cable injection, 10k to 200 MHz; Curve 3, Figure 1
  - + MIL-STD-461F, CS115, bulk cable injection, impulse excitation; impulse, Figure 1
  - + MIL-STD-461F, CS116, damped sinusoidal transients, cables/power leads, 10k-100 MHz; transient, Figures 1-2
  - + RTCA/DO-160G Sec. 20; conducted susceptibility, 10 kHz to 400 MHz, category M; Figure 20-6
  - + EN 55024 electrical fast transient/burst immunity and conducted immunity (per EN 61000-4-4, Criteria B, EN61000-4-6, Criteria A)
- Radiated emissions:
  - + MIL-STD-461F, RE102, electric field, 10 KHz to 18 GHz, fixed wing internal < 25 meters, Figure RE102-3
  - + DO-160G Sec. 21; radiated RF emissions, 100 MHz to 6 GHz, Category L; Figure 21-7
  - + EN 55022, class A (power line radiated emissions)
- Radiated susceptibility:
  - + MIL-STD-461F, RS103, electric field, 2 MHz to 18 GHz, 200V/m, Table VII, RS103 limits
  - + DO-160G Sec. 20; radiated susceptibility, 100 MHz to 8 GHz, Category R; Figure 20-10
  - + EN 55024 radiated electromagnetic field and immunity tests, perf. Criteria A

## Other Specifications

### Export Jurisdiction

- EAR ECCN 5A002.0a.1 (ITAR-free)

### Regulatory Compliance

- European CE Mark pending (including EN55032, EN55024, RoHS2, REACH cert)

### Reliability

- Designed and manufactured using AS9100 aerospace grade / ISO 9001:2000 certified quality program
- No moving parts, no active cooling required
- Conformal coated PCBs for humidity/tin-whisker mitigation, staked and underfilled components

- All industrial grade (itemp) components (rated for -40C to 85C operation or greater)
- MIL-STD-1472 compliance (human factors) without sharp edges, appropriate connector spacing, etc.
- Mean Time Between Failure (MTBF) calculated per MIL-HDBK-217F: see qual test report
- Assembled per IPC-A-610 Class III Workmanship

### Warranty / Service Contracts

- 1 year return to depot hardware warranty (multi-year extended warranties are available)
- Cisco SmartNET agreement available (for Cisco.com, Cisco TAC, and IOS software support)

### VICTORY Compliance

- Router Component Type for Vehicle Integration for C4ISR/ EW Interoperability (VICTORY) with ESR-6300 IOS-XE 17.6.1 forward

## Ordering Information

**TABLE 1** Early Access Unit (EAU) and Cable Set - limited quantities available

PART NUMBER	DESCRIPTION
M6300-NE-DEF-E	DuraMAR 6300 router, Cisco Network Essentials IOS-XE, Default 50Mbps routing throughput license, Early Access Unit (EAU)
CBL-M6300-01-E	Starter breakout cable set for DuraMAR 6300 J1, J2 mating circular connectors transitioning to commercial connectors (i.e. RJ-45/USB/Banana Plugs) for lab/testing, Early Access Unit (EAU)

**TABLE 2** DuraMAR 6300 router - standard configurations

PART NUMBER	CISCO IOS-XE		ROUTING THROUGHPUT LICENSE			EDGE COMPUTE SSD + J3 I/O
	Network Essentials	Network Advantage	Default 50Mb	Performance 250 Mb	Boost >250Mb	100GB mSATA SSD for IOx apps + J3 Connector I/O (USB, Serial)
M6300-NE-DEF	X		X			
M6300-NE-PER	X			X		
M6300-NE-BOO	X					
M6300-NA-DEF		X	X			
M6300-NA-PER		X		X		
M6300-NA-BOO		X			X	
M6300-NE-DEF-MJ	X		X			X
M6300-NE-PER-MJ	X			X		X
M6300-NE-BOO-MJ	X				X	X
M6300-NA-DEF-MJ		X	X			X
M6300-NA-PER-MJ		X		X		X
M6300-NA-BOO-MJ		X			X	X

TABLE 3	
Lab Breakout Cable Set	
PART NUMBER	DESCRIPTION
CBL-M6300-01	Starter breakout cable set for DuraMAR 6300 J1, J2 mating circular connectors transitioning to commercial connectors (i.e. RJ-45/USB/Banana Plugs) for lab/testing
CBL-M6300-02	Starter breakout cable set for DuraMAR 6300 J1, J2, and J3 mating circular connectors transitioning to commercial connectors (i.e. RJ-45/USB/DB9/Banana Plugs) for lab/testing

TABLE 4	
Cisco Communications Manager Express (CME) license (optional)	
PART NUMBER	DESCRIPTION
SFT-6300-CME1	Cisco Communications Manager Express (CME) license for IP phone (one license required per phone used with DuraMAR 6300)

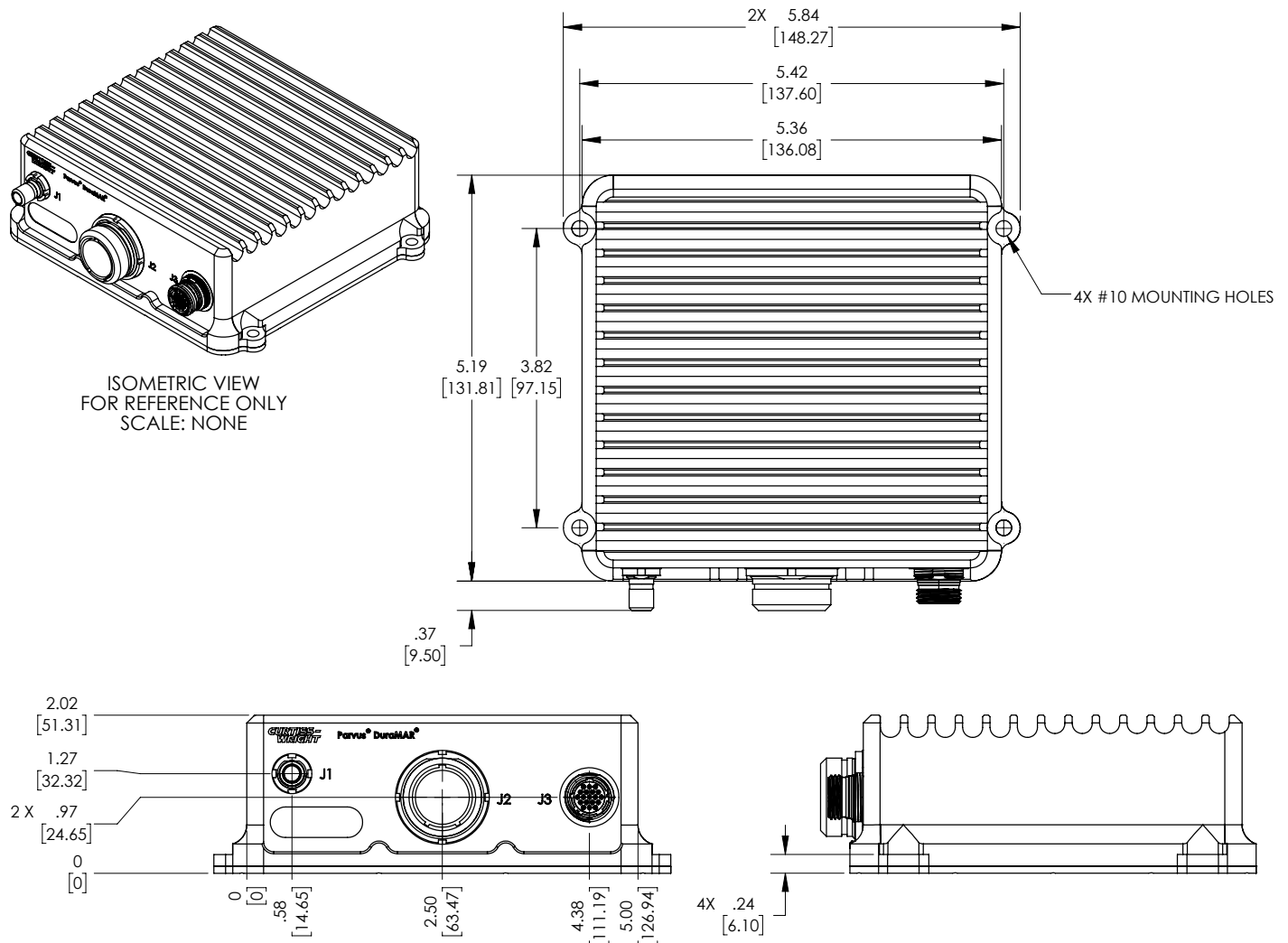


Figure 6: DuraMAR 6300 line drawings (measurements shown are in inches and [cm])