ip infusion

DATASHEET

# OcNOS Data Center (DC)

February 2026

## 1.0 OcNOS Data Center

### 1.1 OcNOS Data Center Key Features

Following are key features of the OcNOS Data Center:

- Comprehensive L2 switching and L3 routing
- EVPN-VxLAN with multihoming, IRB anycast gateway and E-Tree features
- Ethernet for AI – Dynamic Load Balancing, PFC over L3, ETS, DCBX and ECN
- IP multicast
- SNMP, Netconf, OpenConfig Yang data models
- ZTP
- sFlow and streaming telemetry
- AI/ML Networking

**KEY BENEFITS:**

- Deployment proven disaggregated networking solutions
- Open standards-based product, interoperable with existing deployments
- Small footprint resulting from an optimized design
- Scalable NOS with Terabits switching bandwidth support
- Simple, all-inclusive licensing

## 1.2 Data Center Use Cases

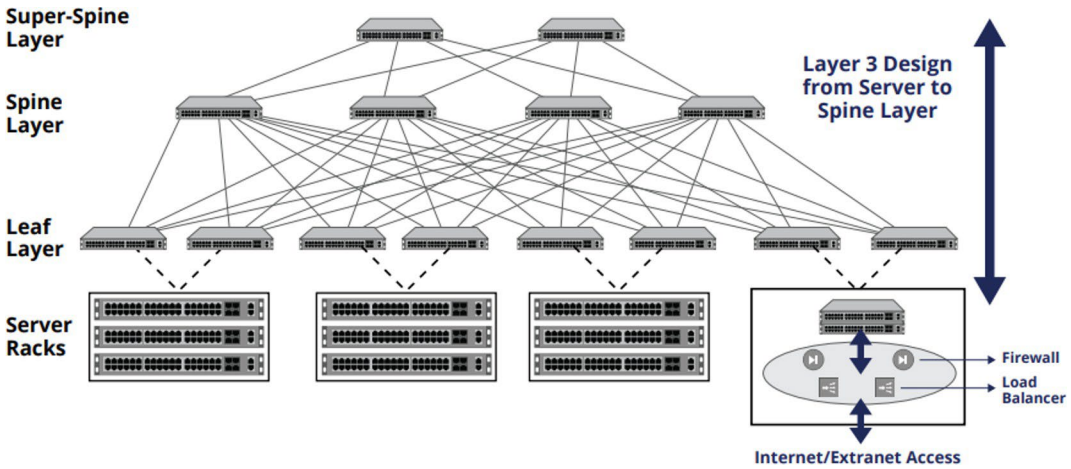
Following lists use cases for OcNOS Data Center:

- DC-CLOS
- Multi-tenant DC (Underlay + Overlay)
- Lossless fabric for AI/ML
- Data center devices out-of-band management

### 1.3 DATA CENTER OVERLAY NETWORKING

The design of data center with overlay networking uses a CLOS fabric based full L3 underlay network to provide a resilient and horizontally scalable network. eBGP is preferred in the underlay for its simplicity to configure and troubleshoot a large uniform topology such as CLOS, and high vendor interoperability. Typical network topology:

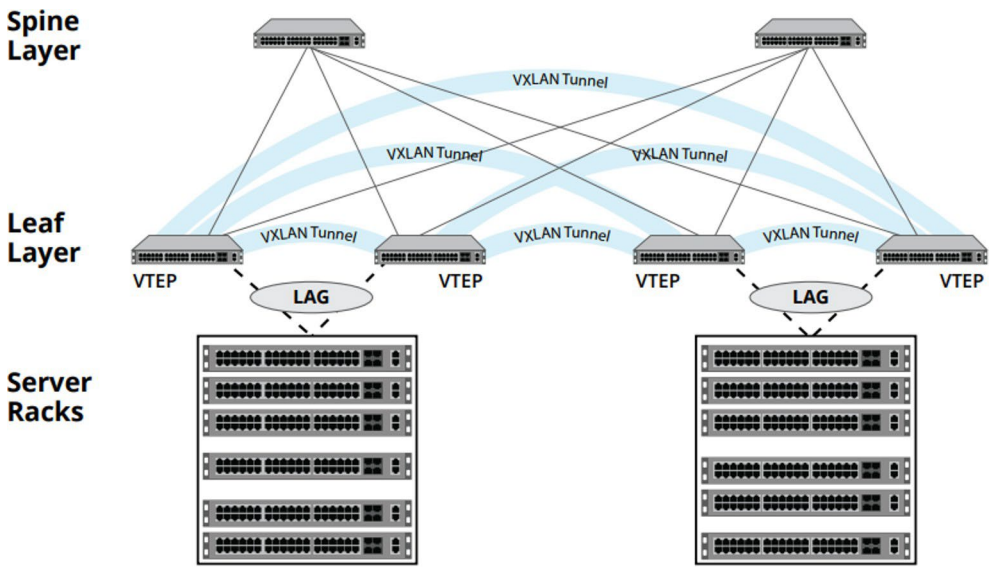
- Fully routed from leaf switch. A L3 only design simplifies the network design and the network operations.
- Redundant server connection to leaf switch.
- Build a large scale data center using uniform nodes.




*Leaf-Spine IP CLOS Underlay Network*

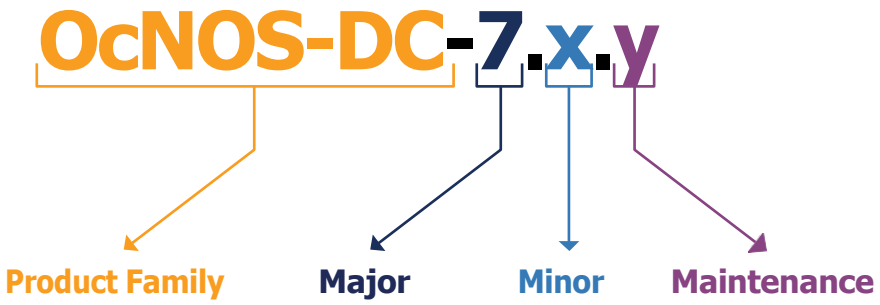
EVPN-VXLAN overlay runs on top of the L3 underlay network to provide both L2 and L3 virtual networks distributed and spread across a data center. EVPN overlay reuses BGP (can be internal or external) with only a separate address family thus keeping the protocol complexity to minimal.

Following EVPN Features are supported:




- EVPN multihoming ensures redundancy and optimal utilization.
- Route-types 1 to 5.
- VLAN-based, VLAN-bundle and VLAN-aware services.
- Auto-RT for L2 VPN's.
- Standard based all-active multihoming ensuring redundancy and optimal utilization.
- Layer 2 ARP/ND learning enables flood control in overlay.
- Layer 3, both interface-full (IRB) and interface-less models.
- Symmetric and Asymmetric IRB.
- Port+VLAN based access-port mapping.
- E-Tree Scenario-1
- Etherent for AI - DLB, ETS ECN and PFC

## 2.0 IP Infusion Product Release Version




**Product Name:** Refers to IP Infusion Product Family.

**Major Version:** A major release consists of major new features and/or large architectural changes.

**Minor Version:** A minor release includes some feature enhancement, functions and bug fixes.

**Maintenance:** Improvements and fixes to existing features enhancing stability of the product.

## 3.0 Features on OcNOS Data Center Release

The table below lists the features in OcNOS-DC. Note, the following mentioned features are only indicative and the detailed feature list may vary. Please refer to Feature Matrix for a complete feature list on supported ODM platforms.

### 3.1 Data Center Software Features

| SOFTWARE FEATURE | SPECIFICATION |
|---|---|
| **Layer 2 Switching** | • VLAN<br>• Spanning Tree Protocol (STP)<br>• Multiple Spanning Tree Protocol (MSTP)<br>• Rapid Spanning Tree (RSTP)<br>• Link Layer Discovery Protocol (LLDPv2)<br>• Link Aggregation<br>• Multi-Chassis Link Aggregation (MLAG)<br>• MLAG with RSTP<br>• Protected port on MLAG with RSTP<br>• MLAG + Provider Bridging (PB) with RSTP<br>• MLAG + VRRPv4 with RSTP<br>• MLAG + VRRPv6 with RSTP<br>• Provider Bridging<br>• Data Center Bridging (DCB) (PFC, ETS and DCBX)<br>• Static MAC address assignment<br>• Bridge Protocol Data Unit (BPDU) Protect<br>• Root Guard<br>• MAC learning disable<br>• Port-based authentication with RADIUS server<br>• Port Security<br>• Unidirectional Link Detection (UDLD) |

| SOFTWARE FEATURE | SPECIFICATION |
|---|---|
| **Layer 3 Routing** | • Ethernet ARP<br>• Transmission of IP datagrams over Ethernet<br>• Congestion control in IP/TCP networks<br>• IP Broadcast<br>• IP Broadcast in the presence of subnets<br>• IP subnetting<br>• Classless Inter-Domain Routing (CIDR)<br>• Requirements for IP version 4 routers<br>• Route redistribution across RIP, OSPF and BGP<br>• VLAN routing<br>• Inter Virtual Routing and Forwarding (VRF) route leaking<br>• Static inter VRF route leaking for IPv6 (between default and non-default instances)<br>• Multiple loopback interfaces in same VRF<br>• Static route tracking using object tracking (IP SLA)<br>• Route advertisement for IPv6<br>• URPF<br>• BGP<br>• RIP<br>• OSPF<br>• ISIS<br>• BFD<br>• VRRPv3 |
| **Virtual Extensible LAN (VxLAN)** | • Layer 2 EVPN for VXLAN<br>• Layer 2 EVPN auto RT for VxLAN<br>• Layer 2 EVPN multihoming for VXLAN<br>• VxLAN EVPN with BGP unnumbered<br>• VXLAN-EVPN L2CP on EVPN Access<br>• VxLAN QoS<br>• VxLAN IRB<br>• VxLAN-IRB QoS<br>• VXLAN IRB - Inter-VRF route leaking<br>• Selectively enabling multiple IP addresses on IRB interface for anycast-gateway<br>• DHCP Relay for VXLAN IRB<br>• Static VXLAN<br>• VXLAN Trunk as access port<br>• VXLAN - Overlay Equal-Cost Multipath (ECMP)<br>• EVPN ETREE with VxLAN transport<br>• Ingress and egress IP ACL for IRB interface<br>• BGP, OSPF and ISIS support on IRB interface<br>• VRF export-map extension<br>• EVPN AF route-maps + EVPN route-filtering based on RT<br>• EVPN L3 GW / VXLAN L3 stitching |
| **Multicast Features** | • Protocol Independent Multicast – Sparse Mode (PIM-SM) for IPv4 and IPv6<br>• Protocol Independent Multicast – Dense Mode (PIM-DM) for IPv4<br>• PIM - Source Specific Multicast for IPv4 and IPv6<br>• MLD v1 and MLD v2<br>• PIM ECMP IPv4<br>• Internet Group Management Protocol (IGMP), Version 2<br>• Internet Group Management Protocol (IGMP), Version 3 |
| **Quality of Service (QoS)** | • DiffServ field in IPv4/IPv6 headers<br>• Assign matching traffic flow to a specific queue<br>• L2 and L3 QoS<br>• Shaping per queue, per port<br>• Multiple hardware queues per port |

| SOFTWARE FEATURE | SPECIFICATION |
|---|---|
| **Quality of Service (QoS) (cont'd)** | • WFQ/SP scheduling per queue<br>• WRED<br>• 802.1p remarking<br>• Classification based on interface, ACL, DSCP, IP precedence, 802.1p, and VLAN<br>• Trust IEEE 802.1p/DSCP<br>• Police rate (SRTCM/TRTCM)<br>• Minimum and maximum bandwidth per queue<br>• Service queuing (mapping services to specific VLANs and shaping each VLAN based traffic)<br>• IP SLA (ICMP Echo)<br>• ToS based queue distribution over Layer 2 Interface<br>• QoS with PFC over L3 for RoCEv2<br>• Explicit Congestion Notification (ECN)<br>• Mirror to CPU with filtering |
| **Management** | • Role based CLI management and access<br>• CLI access via console, telnet and SSH<br>• Authentication using TACAS+/RADIUS Client<br>• Extended ping and traceroute<br>• SNMP v1, v2, and v3<br>• DHCP client<br>• DHCP Relay<br>• DHCP Option 82 (IPv4)<br>• NTP client<br>• NTP server<br>• Syslog<br>• File Upload/Download using FTP/TFTP/SFTP/SCP<br>• Management VRF<br>• Ansible<br>• Upgrade mechanism from ONIE prompt using ONIE NOS install and from OcNOS shell using sys-update<br>• Zero Touch Provisioning (ZTP) (with IPv4)<br>• Zero Touch Provisioning (ZTP) (with IPv6)<br>• ACL support over Management, VTY and Loopback<br>• sFlow<br>• Debounce Timer<br>• DHCPv6 prefix delegation<br>• DNS Relay (v4 and v6)<br>• Storing multiple images on platform<br>• Fault Management System<br>• DHCP Relay across VRFs<br>• Infrastructure for pluggable OLT modules<br>• DHCP Server (IPv4 and IPv6)<br>• Network Configuration Protocol (NETCONF)<br>– YANG 1.0 data modelling language<br>– YANG 1.1 data modeling language<br>– IP Infusion data models<br>– OpenConfig data models<br>– NETCONF protocol over Secure Shell (SSH)<br>– NETCONF event notifications<br>– YANG module for NETCONF monitoring<br>– NETCONF base notifications<br>– NETCONF access control model<br>– Multiple simultaneous config sessions for CLI<br>– Transaction based CLI<br>– Netconf Call Home |

| SOFTWARE FEATURE | SPECIFICATION |
|---|---|
| **Management (cont'd)** | • Streaming Telemetry dial-in and dial-out<br>• Configurable Password Policy<br>• Event Manager |
| **Security** | • Secure interface login and password<br>• Storm control<br>• Flow control<br>• DHCP Snooping<br>• IP Source Guard<br>• Dynamic ARP inspection<br>• Access Control Lists (ACLs) based on<br>– IP/Port/IP-ProtocolType/MAC/Ethertype<br>– TCP Flags, Protocol type, IP fragment flags, DSCP, CoS, IP Precedence, VLAN<br>– Rule prioritization and re-sequence<br>– On-fly modification<br>– Timed ACL |
| **Hardware Monitoring Features** | • Switched Port Analyzer (SPAN)<br>• Remote Switched Port Analyzer (RSPAN)<br>• Encapsulated Remote Switched Port Analyzer (ERSPAN)<br>• Load balancing<br>• PHY/MAC level interface loopback<br>• TCAM space monitoring<br>• Chassis monitoring<br>– Temperature monitor<br>– Fan control<br>– CPU load monitoring<br>– Board information (EEPROM)<br>– Fan and PSU FRU information<br>• Digital Diagnostics Monitoring (DDM)<br>– Temperature monitoring<br>– Power monitoring (power, current, voltage)<br>• Backup and restore from USB |
| **AI/ML Networking** | • Dynamic Load Balancing<br>• Reactive Path Re-balancing (RPR)<br>• PFC with QoS over Layer 3<br>• DCBx LLDP capability negotiation<br>• Static and Dynamic ECN<br>• ECN and PFC over VxLAN<br>• PFC watch dog<br>• Buffer burst absorption factor |

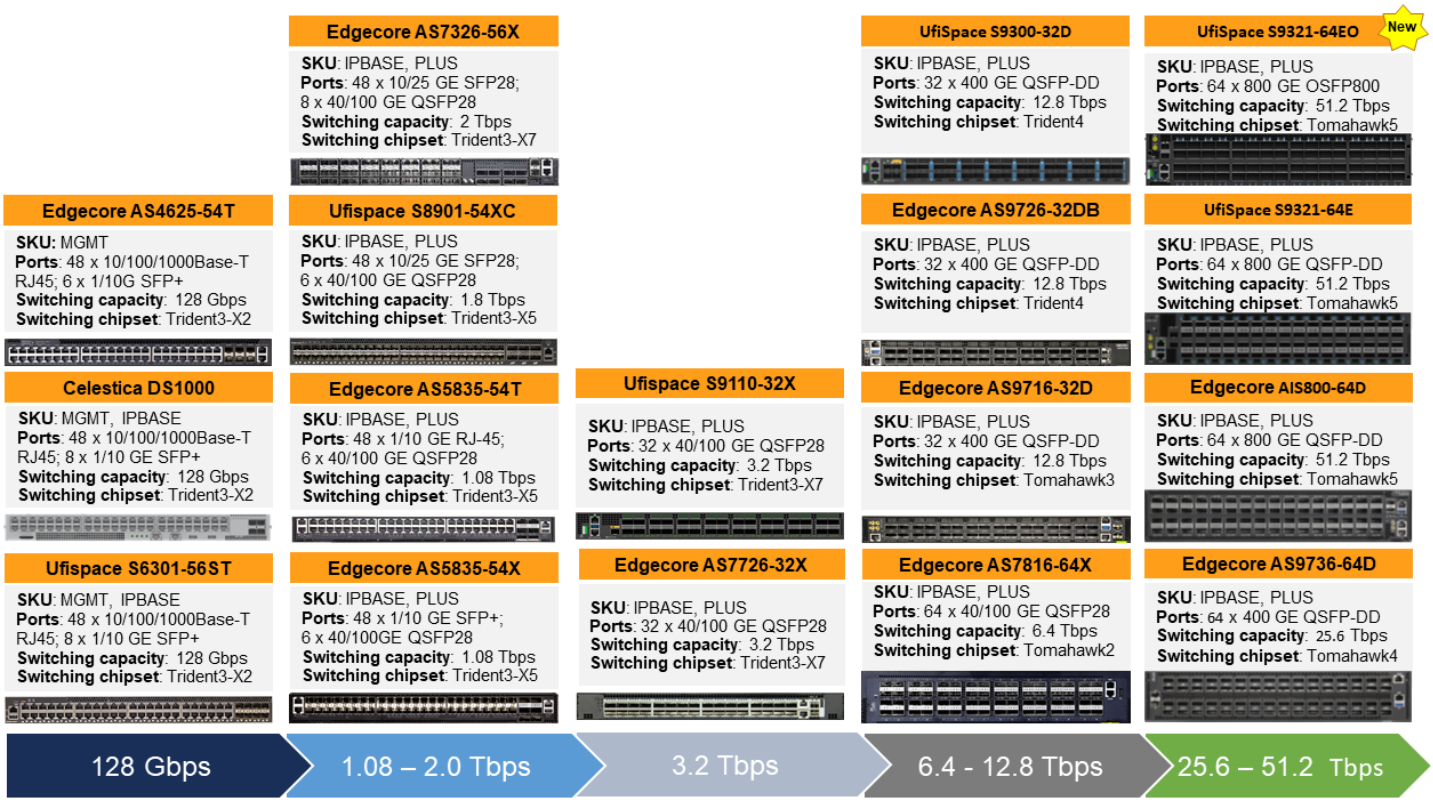
## 3.2 OcNOS Data Center Software SKUs

| SKU NAME | DESCRIPTION |
|---|---|
| OCNOS-DC-MGMT | Open Compute Network Operating System Data Center MGMT image with Layer 2 switching and Layer 3 routing (via OSPF, IS-IS, and BGP) support, with perpetual use license (1 license). |
| OCNOS-DC-IPBASE | Open Compute Network Operating System Data Center IPBASE image with Layer 2 switching, Layer 3 routing (via OSPF, IS-IS, and BGP), and EVPN-VxLAN support, with perpetual use license (1 license). |
| OCNOS-DC-PLUS | Open Compute Network Operating System Data Center PLUS image with Layer 2 switching, Layer 3 routing (via OSPF, IS-IS, and BGP), EVPN-VxLAN, Dynamic Load Balancing, and streaming telemetry support, with perpetual use license (1 license). |

# 4.0 Solution Ordering Guide

## 4.1 OcNOS Data Center Supported Hardware Platforms

The following hardware platforms are supported.




## 4.2 Platforms Supported per SKU Solution Ordering Guide

| S. NO. | VENDOR PLATFORM | CHIPSET | SPEED/INTERFACE | CPU | OCNOS-DC SKU |
|---|---|---|---|---|---|
| 1 | UfiSpace S6301-56ST | Trident III BCM56277 | 48 x 1 GbE RJ45, 8 x 10 GbE SFP+ | Intel Atom | OCNOS-DC-MGMT, OCNOS-DC-IPBASE |
| 2 | Celestica DS1000 | Trident III BCM56277 | 48 x 1 GbE RJ45, 8 x 10 GbE SFP+ | Intel Atom | OCNOS-DC-MGMT, OCNOS-DC-IPBASE |
| 3 | Edgecore AS4625-54T | Trident III BCM56277 | 48 x 1GbE RJ45, 6 x 10GbE SFP+ | Intel Atom | OCNOS-DC-MGMT |
| 4 | Edgecore AS5835-54T | Trident III BCM56771_A0 | 48 x 1/10 GbE RJ45, 6 x 40/100 GbE. 2 x 40/100GbE ports are splittable into 4 x 10/25GbE | Intel Atom | OCNOS-DC-IPBASE, OCNOS-DC-PLUS |
| 5 | Edgecore AS5835-54X | Maverick 2 BCM56771 | 48 x 1/10 GbE SFP+, 6 x 40/100 GbE. 2 x 40/100 GbE ports are splittable into 4 x 10/25 GbE | Intel Atom | OCNOS-DC-IPBASE, OCNOS-DC-PLUS |
| 6 | UfiSpace S8901-54XC | Trident III BCM56770 | 48 x 1/10/25 GbE, 6 x 40/100GbE. Each 40/100 GbE port is splittable into 4 x 10/25 GbE | Intel Atom | OCNOS-DC-IPBASE, OCNOS-DC-PLUS |

| S. NO. | VENDOR PLATFORM | CHIPSET | SPEED/INTERFACE | CPU | OCNOS-DC SKU |
|---|---|---|---|---|---|
| 7 | Edgecore AS7326-56x | Trident III BCM56873 | 48 x 1/10/25GbE, 8 x 40/100GbE. Each 100 GbE port is splittable into 4 x 10/25 GbE | Intel Xeon D-1518 | OCNOS-DC-IPBASE, OCNOS-DC-PLUS |
| 8 | UfiSpace S9110-32X | Trident III BCM56870 | 32x 40/100 GbE. Each 40/100 GbE port is splittable into 4 x 10/25 GbE or 2 x 50 GbE | Intel Atom | OCNOS-DC-IPBASE, OCNOS-DC-PLUS |
| 9 | Edgecore AS7726-32X | Trident III BCM56870 | 32 x 40/100 GbE. Each 40/100 GbE port is splittable into 4 x 10/25 GbE or 2 x 50 GbE | Intel Xeon D-1518 | OCNOS-DC-IPBASE, OCNOS-DC-PLUS |
| 10 | Edgecore AS7816-64x | Tomahawk II BCM56970 | 64 x 40/100 GbE. Each 40/100 GbE port is splittable into 4 x 10/25 GbE or 2 x 50 GbE | Intel Xeon D-1518 | OCNOS-DC-IPBASE, OCNOS-DC-PLUS |
| 11 | Edgecore AS9716-32D | Tomahawk III BCM56980 | 32 x 100/400 GbE. Each 100/400 GbE port is splittable into 4 x 100GbE or 4 x 25 GbE | Intel Xeon D-1518 | OCNOS-DC-IPBASE, OCNOS-DC-PLUS |
| 12 | Ufispace S9300-32D | Trident IV BCM56880 | 32 x 100/400GbE, Each 100/400GbE port is splittable into 4 x 100GbE | Intel Xeon D-2145NT | OCNOS-DC-IPBASE, OCNOS-DC-PLUS |
| 13 | Edgecore AS9726-32DB | Trident IV BCM56880 | 32 x 100/400 GbE. Each 100/400 GbE port is splittable into 4 x 100GbE | Intel Pentium D1519 | OCNOS-DC-IPBASE, OCNOS-DC-PLUS |
| 14 | Edgecore AS9736-64D | Tomahawk IV BCM56990 | 64 x 100/400 GbE. Each 100/400 GbE port is splittable into 4 x 100GbE | Intel Xeon D-1518 | OCNOS-DC-IPBASE, OCNOS-DC-PLUS |
| 15 | Edgecore AS9817-64D | Tomahawk V BCM78900 | 64 x 800 GbE. Each 800 GbE port is splittable into 2 x 400 GbE, 4 x 200 GbE, or 8 x 100 GbE | Intel Xeon D-1713NTE | OCNOS-DC-IPBASE, OCNOS-DC-PLUS |
| 16 | UfiSpace S9321-64E | Tomahawk V BCM78900 | 64 x 800 GbE. Each 800 GbE port is splittable into 2 x 400 GbE, 4 x 200 GbE, or 8 x 100 GbE | Intel Icelake-D D-2733NT | OCNOS-DC-IPBASE, OCNOS-DC-PLUS |
| 17 | UfiSpace S9321-64EO | Tomahawk V BCM78900 | 64 x 800 GbE. Each 800 GbE port is splittable into 2 x 400 GbE, 4 x 200 GbE, or 8 x 100 GbE | Intel Icelake-D 4-core | OCNOS-DC-IPBASE, OCNOS-DC-PLUS |

## 4.3 Maintenance & Support

| SKU | MAINTENANCE & SUPPORT |
|---|---|
| **OCNOS-MS-1Y** | 1 Year Maintenance & Support with Upgrades – Includes Technical support resources, software updates & upgrades, email and phone support, access to Support web site including case management system. Access to technical support team 24 x 7 for Severity 1 issues, normal business hours for all other issues. "Upgrade" means a version change for the licensed software with substantial improvements, enhancements and bug fixes. |
| **OCNOS-MS-3Y** | 3 Year Maintenance & Support with Upgrades – Includes Technical support resources, software updates & upgrades, email and phone support, access to Support web site including case management system. Access to technical support team 24 x 7 for Severity 1 issues, normal business hours for all other issues. "Upgrade" means a version change for the licensed software with substantial improvements, enhancements and bug fixes. |

| SKU | MAINTENANCE & SUPPORT |
|---|---|
| **OCNOS-MS-5Y** | 5 Year Maintenance & Support with Upgrades – Includes Technical support resources, software updates & upgrades, email and phone support, access to Support web site including case management system. Access to technical support team 24 x 7 for Severity 1 issues, normal business hours for all other issues. "Upgrade" means a version change for the licensed software with substantial improvements, enhancements and bug fixes. |
| **OCNOS-MS-1Y-Premium** | 1 Year Maintenance & Support with Upgrades – Includes Technical support resources, software updates & upgrades, email and phone support, access to Support web site including case management system. Access to technical support team 24 x 7 for all issues. "Upgrade" means a version change for the licensed software with substantial improvements, enhancements and bug fixes. |
| **OCNOS-MS-3Y-Premium** | 3 Year Maintenance & Support with Upgrades – Includes Technical support resources, software updates & upgrades, email and phone support, access to Support web site including case management system. Access to technical support team 24 x 7 for all issues. "Upgrade" means a version change for the licensed software with substantial improvements, enhancements and bug fixes. |
| **OCNOS-MS-5Y-Premium** | 3 Year Maintenance & Support with Upgrades – Includes Technical support resources, software updates & upgrades, email and phone support, access to Support web site including case management system. Access to technical support team 24 x 7 for all issues. "Upgrade" means a version change for the licensed software with substantial improvements, enhancements and bug fixes. |

## 5.0 Relevant Links

Additional information about the following documents is available on the IP Infusion website (https://www.ipinfusion.com/products/ocnos/)

- Feature Matrix
- Hardware Compatibility List
- NETCONF Support

## For More Information

Contact us today to learn more about the OcNOS Data Center.

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### ABOUT IP INFUSION

IP Infusion is a leading provider of open network software and solutions for carriers, service providers and data center operators. Our solutions enable network operators to disaggregate their networks to accelerate innovation, streamline operations, and reduce Total Cost of Ownership (TCO). Network OEMs may also disaggregate network devices to expedite time to market, offer comprehensive services, and achieve carrier grade robustness. IP Infusion network software platforms have a proven track record in carrier-grade open networking with over 500 customers and over 10,000 deployments. IP Infusion is headquartered in Santa Clara, Calif., and is a wholly owned and independently operated subsidiary of ACCESS CO., LTD. Additional information can be found at **http://www.ipinfusion.com**

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