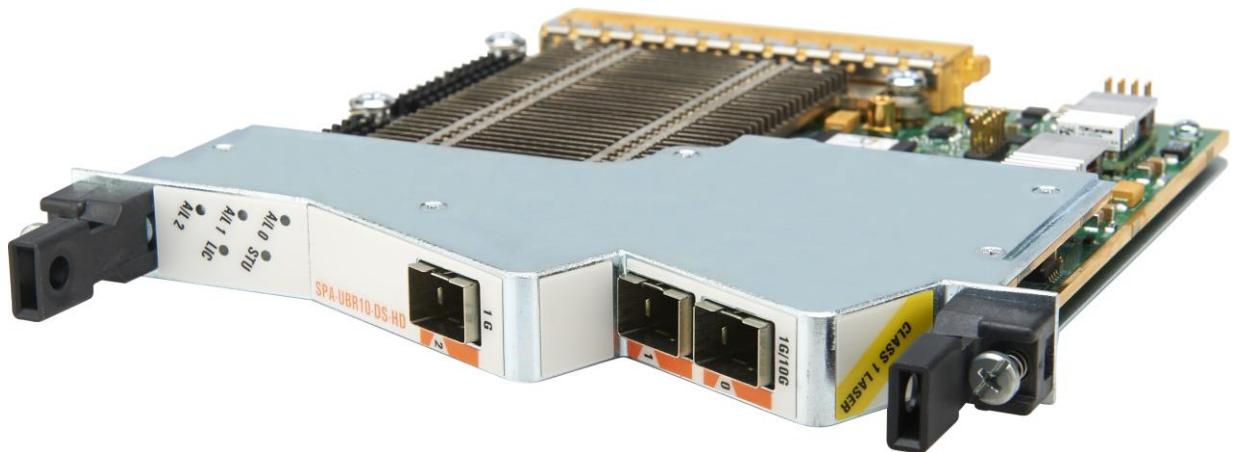# Cisco 3 Gbps Wideband Shared Port Adapter for the Cisco uBR10012 Universal Broadband Router

Product Overview

The Cisco[®] 3 Gbps Wideband Shared Port Adapter (SPA) is the next-generation high-density SPA for the Cisco uBR10012 Universal Broadband Router, which allows cable operators to offer high-speed broadband connectivity at high scale and to deliver IP video services with low capital expenditure. The Cisco 3 Gbps Wideband SPA (Figure 1) provides dramatically increased density, compared to the Cisco 1 Gbps Wideband SPA for the Cisco uBR10012. With the Cisco 3 Gbps Wideband SPA, the Cisco uBR10012 provides cable operators with an easy, flexible upgrade path toward a Converged Cable Access Platform (CCAP) and an all-IP infrastructure, while reducing the effect on operations, CapEx and rack space requirements. A Cisco uBR10012 equipped with eight Cisco uBR-MC3GX60V and eight Cisco 3 Gbps SPAs can provide up to 1152 DOCSIS[®] downstream channels or 864 Euro-DOCSIS downstream channels.

Figure 1.   Cisco 3 Gbps Wideband SPA for the Cisco uBR10012 Universal Broadband Router

Features and Benefits

High-Density SPA Doubles the Downstream Bandwidth

- Capacity for 72 DOCSIS Annex B or 54 Annex A downstream channels
- 3 Gbps Wideband SPAs that work in conjunction with the existing Cisco uBR-MC3GX60V to double the available downstream bandwidth of the Cisco uBR10012 system
- Support for 1 Gbps or more per service group

Small Form Factor Promotes Industry-Leading Density

- Single-wide, half-height SPA form factor, up to eight 3 Gbps Wideband SPAs can be equipped by using two Cisco 10000 Series SPA Interface Processor-600 jacket cards

Link Redundancy Assures High Availability

- Three 1 Gigabit Ethernet Small Form-Factor Pluggable (SFP) ports or 1 + 1 redundant 10 Gigabit Ethernet Enhanced Small Form-Factor Pluggable (SFP+) ports
- Connectivity to third-party edge quadrature amplitude modulations (QAMs) using three dedicated 1 Gigabit Ethernet interfaces or dual 10 Gigabit Ethernet interfaces

Backward Compatibility

- Compatible with currently supported line cards and SPA
- RF spanning support
  - Downstream channels from the Cisco 3 Gbps Wideband SPA can be associated with a service group hosted on different line cards, like Cisco uBR-MC3GX60V and Cisco uBR-MC20X20V.
  - Downstream channels from the 3 Gbps Wideband SPA can be associated with upstream channels from a Cisco uBR-MC3GX60V or Cisco uBR-20X20V in one MAC domain.

Flexibility with Cisco Software Licensing

- Software license support allows incremental investment for effective use of capital.
- Minimum configuration includes base hardware and licenses for 16 downstream channels.
- Additional optional licenses are available in increments of 1 downstream channel, up to the full capacity of 72 downstream channels (Annex B) or 54 downstream channels (Annex A).
- Cisco Software Licensing infrastructure facilitates licensing.

Product Specifications

Table 1 provides product specifications for the Cisco 3 Gbps Wideband SPA.

Table 1.　　Product Specifications

Feature	Description
Physical	- Occupies one single half-height SPA slot (half slot) - One Small Form-factor Pluggable (SFP) and two Enhanced Small Form-Factor Pluggable (SFP+) connectors which support three 1 Gigabit Ethernet modules or dual 10 Gigabit Ethernet modules - Hot-swappable; either side sub slot (0 or 1) can be used. - Weight: 1.32 lb (0.6 kg) - Dimensions (H x W x D): 6.69 x 0.75 x 6.69 in (170 x 19 x 170 mm)
Software compatibility	Compatible with Cisco IOS® Software Release 12.2(33)SCH and later Cisco IOS Software Release 12.2 images supported on the Cisco uBR10012 Router
Power	Unit power: 30W
Reliability and availability	Mean time between failures (MTBF): >500,000 hr
Environmental	- Operating altitude: –197 to 13,123 ft (–60 to 4000m) - Conforms to IEC/EN/UL/CSA 60950 requirements up to 2000m - Storage temperature: –4 to 149°F (–20 to 65°C) - Operating temperature, nominal: 41 to 104°F (5 to 40°C) - Storage relative humidity: 5 to 95% - Operating relative humidity: 10 to 90%

Feature	Description
Supported SFP	10 Gigabit Ethernet model • SFP-10G-SR-X • SFP-10G-LR-X 1 Gigabit Ethernet model • SFP-GE-T • SFP-GE-Z • GLC-SX-MMD • GLC-ZX-SMD • GLC-LH-SMD
Regulatory compliance	Safety • UL60950 and CAN/CSA-C22.2 No. 60950 • IEC/EN 60950 • 73/23/EECIEC/EN 60950 • AS/NZS 60950 Electromagnetic Emissions • EN55022: Class A • CISPR 22: Class A • CFR 47 Part 15 Class A • ICES -003 • VCCI • AS/NZS:CISPR22 • CNS-13438 Class A Electromagnetic Immunity • EN55024: • EN61000-3-2 • EN61000-3-3 • EN61000-4-2: ESD immunity • EN61000-4-3: Radiated RF field immunity • EN61000-4-4: Immunity to electrical fast transients • EN61000-4-5: Surge immunity • EN61000-4-6: RF conducted immunity
Network Equipment Building System (NEBS)	Designed to meet the requirements of: • Level 3 • GR-1089 Core 2011
Mechanical	• IEC 68-2-1, IEC 68-2-2, IEC 68-2-56: Operational temperature and humidity • IEC 68-2-41: Operational Altitude • IEC 68-2-27: Operating shock • IEC 68-2-64, IEC 68-2-6, IEC 68-2-47: Operating and non-operating vibration • IEC 68-2-40: Nonoperating altitude • IEC 68-2-27, IEC 68-2-32: Non-operating mechanical shock • IEC 68-2-1, IEC68-2-2: Non-operational Temperature • IEC 68-2-3: Nonoperating humidity • IEC 68-2-14, IEC 68-2-33: Non-operating temperature shock
LEDs	• One SPA status LED (amber or green): Off indicates that power is off, or SPA is in reset status. Solid amber indicates that the SPA power is on and good, and the SPA is being configured. Solid green indicates the SPA is ready and operational. • One license LED (green): Solid amber indicates that there is no license installed or invalid license. Flashing green indicates the license is available for 1~71 channels. Solid green indicates that the SPA has been equipped with full license (72 channels). • One status LED for each 10 or 1 Gigabit Ethernet interface (amber or green): Off indicates that the optical module is not present. Solid amber indicates that the optical module is detected by hardware. Solid green indicates the port is linked with the opposite. Flashing green indicates that there is traffic through the optical links.

Feature	Description
10 and 1 Gigabit Ethernet optical connectivity options	• GLC-SX-MMD (SFP-GE-S) optics support a maximum distance of 1804 ft (550m). • GLC-LH-SMD (SFP-GE-L) optics support a maximum distance of 6.21 mile (10 km). • GLC-ZX-SMD (SFP-GE-Z) optics support a maximum distance of 43.5 mile (70 km). • SFP-GE-T support a maximum distance 328 ft (100m). • SFP-10G-SR-X optics support a maximum distance of 984 ft (300m). • SFP-10G-LR-X optics support a maximum distance of 6.21 mile (10 km).
MIBs	Standard MIBs • IF-MIB (RFC-2233) • IP-FORWARD-MIB (RFC-4292) • ENTITY-MIB (RFC-2737) • MIBII (RFC1213) • EtherLike-MIB (RFC-2665) • IGMP-MIB (RFC-2993) • RMON-MIB (RFC-1757) • IP-MIB • ENTITY-SENSOR-MIB Expression MIBs • Simple Network Management Protocol Version 2 Structure of Managed Information (SNMPv2 SMI) • SNMPv2-TC • SNMPv2-MIB • IANAifType-MIB Simple Network Management Protocol Version 3 (SNMPv3) MIBs • SNMP-FRAMEWORK-MIB (RFC-2571) • SNMP-MPD-MIB (RFC-2572) • SNMP-NOTIFICATION-MIB (RFC-2573) • SNMP-TARGET-MIB (RFC-2573) • SNMP-USM-MIB (RFC-2574) • SNMP-VACM-MIB (RFC-2575) DOCSIS and EuroDOCSIS MIB • DOCS-IF-MIB (RFC 4546) • DOCS-CABLE-DEVICE-MIB (RFC-2669) • DOCS-BPI-PLUS-MIB • DOCS-QOS-MIB • DOCS-CABLE-DEVICE-TRAP-MIB • DOCS-SUBMGT-MIB • DOCS-IF3-MIB • DOCS-QOS3-MIB • DOCS-DRF-MIB • DOCS-LOADBAL3-MIB • DOCS-DIAG-MIB • DOCS-SUBMGT3-MIB • CLAB-TOPO-MIB • DOCS-MCAST-AUTH-MIB • DOCS-MCAST-MIB • DOCS-SEC-MIB • DOCS-IETF-BPI2-MIB • DOCS-IETF-QOS-MIB Cisco DOCSIS MIBs • CISCO-DOCS-EXT-MIB • CISCO-DOCS-REMOTE-QUERY-MIB • CISCO-DOCS-QOS-EXT-MIB • CISCO-CABLE-SPECTRUM-MIB • CISCO-CABLE-AVAILABILITY-MIB • CISCO-DOCS-EXT-CAPABILITY-MIB • CISCO-CABLE-WIDEBAND-MIB

Feature	Description
	Cisco Generic MIBs • CISCO-SYSLOG-MIB • CISCO-SMI-MIB • CISCO-TC-MIB • CISCO-PRODUCTS-MIB • CISCO-FLASH-MIB • CISCO-CONFIG-MAN-MIB • CISCO-CONFIG-COPY-MIB • CISCO-MEMORY-POOL-MIB • CISCO-BULK-FILE-MIB • CISCO-SONET-MIB • CISCO-TCP-MIB • CISCO-RTTMON-MIB • CISCO-FTP-CLENT-MIB • CISCO-IPMROUTE-MIB • CISCO-QUEUE-MIB • CISCO-IMAGE-MIB • CISCO-ENVMON-MIB • CISCO-ENTITY-VENDORTYPE-OID-MIB • CISCO-PRODUCTS-MIB

Product System Requirements and Compatibility

Hardware Requirements

- Cisco uBR10012 Performance Routing Engine 5 is required.
- 3 Gbps Wideband SPA is supported with Cisco uBR-MC20X20V, Cisco uBR-MC3GX60V and Cisco 1 Gbps Wideband SPA.
- Cisco 10000 Series SPA Interface Processor-600 carrier card is required

Software Requirements

- Cisco IOS Software Release 12.2(33)SCH and later Cisco IOS Software Release 12.2 images supported on the Cisco uBR10012 Router

Ordering Information

To place an order, visit the [Cisco Ordering homepage](#). Table 2 lists the ordering information for the Cisco 3 Gbps Wideband SPA.

Table 2.   Ordering Information

Product Name	Part Number
3G SPA Hardware	
UBR10012 High Density Downstream Shared Port Adapter; Base HW	SPA-UBR10-DS-HD
UBR10012 High Density Downstream Shared Port Adapter; Base HW Spare	SPA-UBR10-DS-HD=
Spare SPA w/ 0 License	SPA-UBR10-DS-SP=
Software License	
1 DS license: Must configure with SPA-UBR10-DS-HD only	SWLIC-SPA-UBR10-DS
1 Count DS license for SPA	L-SPA-UBR10-DS
PAK Container For SPA	L-SPA-UBR10-SWLIC=

Product Name	Part Number
SFP Optics	
1000BASE-ZX Gigabit Ethernet SFP (DOM)	SFP-GE-Z
1000BASE-T SFP (NEBS 3 ESD)	SFP-GE-T
1000BASE-SX SFP transceiver module, MMF,850nm, DOM	GLC-SX-MMD
1000BASE-ZX SFP transceiver module, SMF, 1550nm, DOM	GLC-ZX-SMD
1000BASE-LX/LH SFP transceiver module, MMF/SMF, 1310nm, DOM	GLC-LH-SMD
10G SFP+ Optics	
10GBASE-SR SFP Module for Extended Temp range	SFP-10G-LR-X
10GBASE-SR SFP Module for Extended Temp range	SFP-10G-SR-X

Configuration Note: A minimum configuration of 16 downstream channel licenses is required when purchasing 3G SPA hardware.

Service and Support

Cisco offers a wide range of services programs to accelerate customer success. These innovative services programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco services help you to protect your network investment, optimize network operations, and prepare the network for new applications to extend network intelligence and the power of your business. For more information about Cisco Services, see Cisco Technical Support Services or Cisco Advanced Services.

For More Information

For more information about the Cisco uBR10012, visit www.cisco.com/en/US/products/hw/cable/ps2209/index.html or contact your local account representative.

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