

CORIANT IS NOW PART OF INFINERA

7100 Series Intelligent Services Modules

High-density 10G & 100G, Packet, OTN, and SONET/SDH Switching

The Coriant® 7100 Packet Optical Transport Solutions, including the Coriant® 7100 Pico™ Packet Optical Transport Platform, Coriant® 7100 Nano™ Packet Optical Transport Platform, and Coriant® 7100 Optical Transport System (OTS), provide compact, flexible, and future-proof options for metro edge, metro core, and regional network applications within the Coriant end-to-end packet optical transport portfolio. The 7100 Series is widely deployed with over 10,000 nodes installed and leverages a wide range of Intelligent Services Modules (ISMs). These modules include high-density 10G transponders, a 10G muxponder/ADM, 100G transponders and muxponder/ADMs, OTN switching, SONET/SDH switching, and packet switching. This comprehensive set of modules enables the 7100 Series to address a wide variety of network applications and services ranging from low speed to 100G, from native video and Fibre Channel to SONET/SDH and Ethernet, and from point-to-point services to E-LAN and E-Tree services. By selecting the appropriate module or modules, a given set of services can be addressed at the minimum cost today, while the availability of a wide range of additional module types ensures the 7100 platforms will evolve efficiently to address future service needs and traffic patterns.

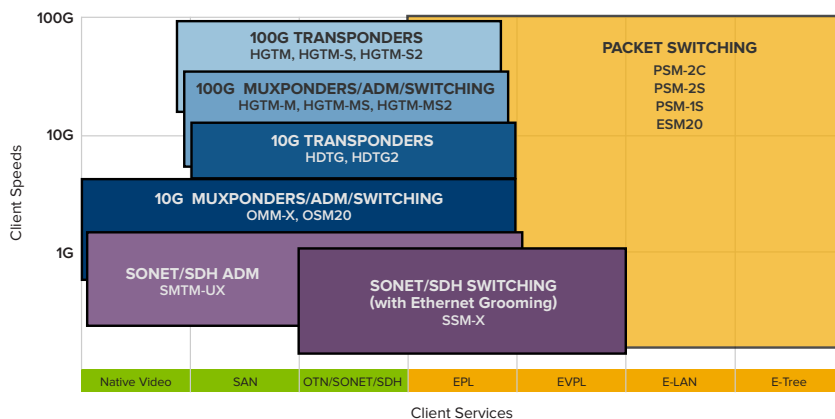


Figure 1: Coriant 7100 Series Intelligent Services Modules Overview



HIGH-DENSITY 10G TRANSPONDERS

The 7100 Series provides two options for high-density 10G. The one slot HDTG provides five independent 10G transponders with ten XFP ports. Client side options include OC-192/STM-64, 10GbE, OTU2/OTU2e, and 8G/10G FC. Line interface options include grey light, fixed DWDM, and tunable DWDM XFPs with GFEC (supported on all ten ports) or EFEC (on five line ports). Additional features include PRBS test and loopback, integrated line side protection, and Y-cable protection.

BENEFITS OF THE CORIANT® 7100 SERIES INTELLIGENT SERVICES MODULES


- **Prepare** for the future with a flexible range of module options including high-density 10G and 100G (transponders, muxponders, and ADMs), OTN switching, packet switching, and SONET/SDH switching
- **Minimize** footprint and power consumption with dense and highly integrated modules including the HDTG2 with 8x10G transponders, the PSM-2C and PSM-2S with 200 Gbps packet switching, and single slot 100G transponder/muxponder/ADM modules
- **Deliver** MEF 2.0 certified Ethernet services with up to 1.2 Tbps of packet switched interface capacity per shelf with 100GbE, 10GbE, and GbE interfaces and support for Ethernet Bridging, VLAN cross-connects, and MPLS-TP
- **Migrate** legacy SONET/SDH networks to packet optical with options including STS-1/VC-4 switching, ADM-on-a-blade, OTN ADMs, and packet transport
- **Reduce** OpEx and maximize availability with integrated PRBS test and loopback, in-band management (GCC, VLAN), OTN OAM including TCM and delay measurement, and packet OAM including Y.1731, 802.1ag, and RFC 2544/Y.1564

The one slot HDTG2 provides eight independent 10G transponders with sixteen SFP+ ports. Supporting the same client and line options as the HDTG, the HDTG2 also supports CWDM SFP+ pluggables and EFEC on all sixteen ports enabling eight EFEC OEO regens using the same port relationships that are used for all other applications. In addition to the features supported on the HDTG, the HDTG2 supports GCC in-band management, TCM, delay measurement, and integrated SNC protection.

HIGH-DENSITY 10G TRANSPONDERS			
Module	Function	Client Interfaces	Line Side Interfaces
	Multi-Port 10G Transponder	5x XFP	5x XFP
		<ul style="list-style-type: none"> OC-192/STM-64 10GbE OTU2 OTU2e with G.709 GFEC Fibre Channel/FICON: 8G, 10G 	<ul style="list-style-type: none"> OTU2, OTU2e Supports G.709 GFEC or G.975.1 I.4 EFEC 88 channel tunable Fixed DWDM
		<ul style="list-style-type: none"> Single HDTG OEO regeneration: <ul style="list-style-type: none"> Up to 2 GFEC to GFEC, GFEC to EFEC, or EFEC to EFEC OEO regens Up to 5 GFEC to GFEC, GFEC to EFEC OEO regens One additional EFEC to EFEC OEO regeneration with paired slots Y-cable protection with paired slots Integrated line protection (OCh-DPRing) PRBS test and loopback 	
	Multi-Port 10G Transponder	8x SFP+	8x SFP+
		<ul style="list-style-type: none"> OC-192/STM-64 10GbE OTU2 and OTU2e with G.709 GFEC, G.975.1 I.4 EFEC, or G.975.1 I.7 EFEC Fibre Channel/FICON: 8G, 10G 	<ul style="list-style-type: none"> OTU2 and OTU2e with G.709 GFEC, G.975.1 I.4 EFEC, or G.975.1 I.7 EFEC 88 channel tunable Fixed DWDM Fixed CWDM
		<ul style="list-style-type: none"> Single HDTG2 OEO regeneration: <ul style="list-style-type: none"> Up to 8 GFEC to GFEC, GFEC to EFEC, or EFEC to EFEC OEO regens PRBS test and loopback Y-cable protection with paired slots Integrated line protection (ODU SNC, OCh-DPRing) GCC in-band management (GCC0,1,2) TCM, delay measurement Extended temperature support (-40°C to +65°C) 	

10G MUXPONDER/ADM

The OMM-X module provides eight low speed SFP ports with support for GbE, SONET/SDH (155M to 2.5G), OTU1, Fibre Channel/FICON (1G, 2G, 4G), native video, and anyrate interfaces up to 5 Gbps; and two 10G/OTU2 XFP line interfaces. The 10G/OTU2 XFP ports support fixed or tunable DWDM pluggables or grey light pluggables. The OMM-X can be used as a single unprotected muxponder, a muxponder with line protection, a dual muxponder, or a 10G ADM with 40 Gbps OTN switching capacity. For the ADM application, two OMM-X modules can be paired via the backplane for redundancy. Additional features include ODUk PM, PRBS test and loopback, SNC protection, GCC support, TCM, delay measurement, and Y-cable protection.

10G MUXPONDER/ADM			
Module	Function	Client Interfaces	Line Side Interfaces
	10G OTN Muxponder, Dual Muxponder, 40G OTN ADM-on-a-blade	8x SFP	Up to 2 XFP
		<ul style="list-style-type: none"> OC-3/STM-1 OC-12/STM-4 OC-48/STM-16 1000BASE-SX/LX/ZX OTU1 Fibre Channel/FICON: 1G, 2G, 4G Video: DVB-ASI, SD-SDI, HD-SDI, 3G-HD-SDI Anyrate (125 Mbps to 5 Gbps) 	<ul style="list-style-type: none"> OTU2 with G.709 GFEC OTU2 with G.975.1 I.4 EFEC or G.975.1 I.7 EFEC 88 channel tunable Fixed DWDM Grey light
		<ul style="list-style-type: none"> Supports a 40G single module switch fabric enabling line-to-line and client-to-client grooming including 2x ODU0 to ODU1 multiplexing Paired operation supported for redundancy 	




OMM-X cont.	<ul style="list-style-type: none"> • Y-cable, SNC protection • PRBS test and loopback • GCC in-band management (GCC0,1,2) • TCM, delay measurement • Extended temperature support (-40°C to +65°C)
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100G TRANSPONDERS

The 7100 Series supports three 100G transponder versions:

- Two slot HGTM with a 100GbE/OTU4 CFP client and integrated coherent PM-QPSK line interface
- One slot HGTM-S with a CFP4 client and a CFP line with support for both grey light and coherent CFPs
- One slot HGTM-S2 with a CFP4 client and coherent CFP2-ACO line

All three modules support PRBS test and loopbacks, Y-cable protection, 1+1 OCh protection (with the OPSM module), OEO regeneration with and without client pluggables, GCC in-band management, and delay measurement. In addition, the HGTM-S2 supports ODU payload encryption.

100G TRANSPONDERS			
Module	Function	Client Interfaces	Line Side Interfaces
	100G Transponder	1x CFP <ul style="list-style-type: none"> • 100GbE • OTU4 with G.709 GFEC <ul style="list-style-type: none"> • 2 slots wide • Y-cable protection with paired slots • 1+1 OCh protection (with OPSM) • PRBS test and loopback • GCC in-band management (GCC0,1,2) • Delay measurement 	1x Integrated Line Port <ul style="list-style-type: none"> • OTU4v with SD-FEC • 88 channel tunable
	Single Slot 100G Transponder with CFP	1x CFP4 <ul style="list-style-type: none"> • 100GbE • OTU4 with G.709 GFEC <ul style="list-style-type: none"> • GCC access from OTU4 signal • Y-cable protection with paired slots • 1+1 OCh protection (with OPSM) • PRBS test and loopback • GCC In-band management (GCC0,1,2) • Delay measurement 	1x CFP <ul style="list-style-type: none"> • OTU4v with SD-FEC • 88/96 channel tunable
	Single Slot 100G Transponder with CFP2-ACO	1x CFP4 <ul style="list-style-type: none"> • 100GbE • OTU4 with G.709 GFEC <ul style="list-style-type: none"> • Y-cable protection with paired slots • 1+1 OCh protection (with OPSM) • PRBS test and loopback • GCC in-band management (GCC0,1,2) • Delay measurement • ODU4 payload encryption 	1x CFP2-ACO <ul style="list-style-type: none"> • OTU4v with SD-FEC • 88/96 channel tunable • Flexi-grid ready

100G MUXPONDERS AND ADMS

The 7100 Series supports three 100G muxponder versions:

- Two slot HGTM-M with ten SFP+ clients and an integrated coherent PM-QPSK line interface
- One slot HGTM-MS with ten SFP+ clients and a CFP line with support for both white light and coherent CFPs
- One slot HGTM-MS2 with ten SFP+ clients and a coherent CFP2-ACO line


Client types supported include OC-192/STM-64, 10G LAN, OTU2/OTU2e, and 8G/10G Fibre Channel. The HGTM-MS2 also supports 16G Fibre Channel. Two HGTM-MS2 modules can be paired via the backplane to form an ADM with two 100G line interfaces and 400 Gbps OTN switching capacity. All three modules support PRBS test and loopbacks, Y-cable protection, 1+1 OCh protection (with the OPSM module), OEO regeneration, GCC in-band management, and delay measurement. In addition, the HGTM-MS2 supports ODU payload encryption.

100G MUXPONDER ADMs			
Module	Function	Client Interfaces	Line Side Interfaces
HGTM-M 	Single Slot 100G Muxponder	10x SFP+	1x Integrated Line Port
		<ul style="list-style-type: none"> • OC-192/STM-64 • 10GbE • OTU2 and OTU2e with G.709 GFEC or G.975.1 I.4 EFEC 	<ul style="list-style-type: none"> • OTU4v with SD-FEC • 88 channel, tunable
		<ul style="list-style-type: none"> • Client interfaces can be supported by tunable DWDM SFP+ • Y-cable protection with paired slots • 1+1 OCh protection (with OPSM) • PRBS test and loopback • GCC in-band management (GCC0,1,2) • Delay measurement 	
HGTM-MS 	Single Slot 100G Muxponder with CFP	10x SFP+	1x CFP
		<ul style="list-style-type: none"> • OC-192/STM-64 • 10GbE • OTU2 and OTU2e with G.709 GFEC, G.975.1 I.4 EFEC, or G.975.1 I.7 EFEC • Fibre Channel/FICON: 8G • 40GbE (40GBASE-SR4, 40GBASE-LR4) 	<ul style="list-style-type: none"> • OTU4v with SD-FEC • 88/96 channels, tunable • Grey light
		<ul style="list-style-type: none"> • Client interfaces can be supported by tunable DWDM SFP+ • Line side can be supported with tunable DWDM interface • Y-cable protection with paired slots • 1+1 OCh protection (with OPSM) • PRBS test and loopback • GCC in-band management (GCC0,1,2) • Delay measurement 	
HGTM-MS2 	Single Slot 100G Muxponder/ADM with CFP2-ACO	10x SFP+	1x CFP2 ACO
		<ul style="list-style-type: none"> • OC-192/STM-64 • 10GbE • OTU2 and OTU2e with G.709 GFEC, G.975.1 I.4 EFEC, or G.975.1 I.7 EFEC • Fibre Channel/FICON: 8G, 16G 	<ul style="list-style-type: none"> • OTU4v with SD-FEC • 88/96 channels, tunable • Flexi-grid ready
		<ul style="list-style-type: none"> • Client interfaces can be supported by tunable DWDM SFP+ • Y-cable protection with paired slots • 1+1 OCh protection (with OPSM) • SNC protection • PRBS test and loopback • GCC in-band management (GCC0,1,2) • Delay measurement • ODU payload encryption • ADM with 400 Gbps OTN capacity and two 100G interfaces (two paired modules) • OTN XC Granularity: ODU2, ODU2e, ODUflex (future: ODU0, ODU1) 	

OTN SWITCHING MODULE

Each OSM20 module provides 20 Gbps of ODU0/1/Flex switching with support for two 10G XFP ports and sixteen SFP ports. Other modules with OTN switching capabilities include the OMM-X with 40 Gbps OTN switching and paired HGTM-MS2 modules providing 400 Gbps OTN switching. Supported client protocols include GbE, SONET/SDH (155M-2.5G), OTU1, 1G/2G/4G Fibre Channel/FICON, 1G/2G ISC, 2.5G and 5G Infiniband, and Native Video (DVB-ASI, SDI, HD-SDI, 3G-SDI). The 10G/OTU2 line ports can support grey light, fixed DWDM, or tunable DWDM pluggables.

Six OSM20 modules can provide 120 Gbps OTN switching in the 7100 Nano, while fourteen OSM20 modules can provide 280 Gbps OTN switching when deployed in the 7100 OTS with SPFAB fabric modules. Additional features include SNC protection, Y-cable protection, GCC, TCM, delay measurement, and L1 ASON/GMPLS Control Plane.

OTN SWITCHING MODULE			
Module	Function	Interfaces	Supported Protocols
OSM20 	OTN Switch	16x SFP/SFP+ (SFP+ for 4G FC and 5G Infiniband only)	<ul style="list-style-type: none"> • OC-3/STM-1, OC-12/STM-4, OC-48/STM-16 • OTU1 with G.709 GFEC • Gigabit Ethernet • Fibre Channel/FICON: 1G, 2G, 4G • ISC: 1G, 2G • InfiniBand: SDR, DDR • Video: DVB-ASI, SD-SDI, HD-SDI, 3G-SDI • Anyrate (125 Mbps to 5 Gbps)
		2x XFP	<ul style="list-style-type: none"> • OTU2 with G.709 GFEC, G.975.1 I.4 EFEC, or G.975.1 I.7 EFEC • 88 channel tunable • Fixed DWDM • Grey light
		<ul style="list-style-type: none"> • ODU0/1/Flex switching • Valid configurations include 16x SFP, 8x SFP + 1x XFP, or 2x XFP • Tandem Connection Monitoring (TCM) of ODU entities • GCC in-band management (GCC0,1,2) • SNC and Y-cable protection • PRBS test and loopback • ODUk ASON/GMPLS Control Plane support • 120 Gbps fabricless OTN switch in 7100 Nano • 280 Gbps OTN Switch in 7100 OTS with SPFAB 	

SONET/SDH SWITCHING MODULES

The 7100 Series offers two options for SONET/SDH switching: the SSM-X and the SMTM-UX. The SSM-X provides 20 Gbps of SONET/SDH switching with integrated packet grooming. Each SSM-X module provides one OC-192/STM-64/OTU2 XFP line port, one 10GbE/OC-192/STM-64 client port, and twelve SFP ports with support for 10/100/1000M Ethernet and 155M to 2.5G SONET/SDH interfaces. The 10G line port can support grey light, fixed DWDM, or tunable DWDM pluggables.

Six SSM-X modules can provide a 120 Gbps SONET/SDH (STS-1/VC-4) switch in the 7100 Nano, while fourteen SSM-X modules can provide a 280 Gbps SONET/SDH (STS-1/VC-4) switch when deployed in the 7100 OTS with SPFAB fabric modules. The SSM-X also provides integrated packet grooming including Ethernet Port and VLAN steering to VCAT groups. Packet-related features include VCAT, LCAS, and GFP-F, VLAN tagging/switching, L2 protocol tunneling, link aggregation, and Ethernet QoS including policing, classification, and priority queuing. Additional features include SNC, UPSR, MSP and APS protection, Synchronization Status Message (SSM) support, L1 ASON/GMPLS restoration, and PRBS test and loopback.

For STS-1/VC-4 SONET/SDH ADM functionality, the SMTM-UX provides an additional cost-effective option with one OTU2 XFP port and ten SFP ports supporting paired operation for a 40 Gbps ADM via the backplane. The 10G port supports grey, fixed DWDM, and tunable DWDM XFPs. Client options include SONET/SDH (155M to 2.5G), GbE, and SAN including Fibre Channel, FICON, and ESCON (up to 4G). Additional features include PRBS test and loopback, GFP-T/GFP-F, VCAT, SNCP/UPSR protection, hair pinning, and SSM support.




SONET/SDH SWITCHING MODULES


Module	Function	Interfaces	Supported Protocols
SSM-X 	SONET/SDH Switch with Ethernet Grooming	12x SFP (Client)	<ul style="list-style-type: none"> • OC-3/STM-1 • OC-12/STM-4 • OC-48/STM-16 • 10/100/1000M Ethernet
		1x XFP (Client)	<ul style="list-style-type: none"> • OC-192/STM-64 • 10GbE
		1x XFP (Line)	<ul style="list-style-type: none"> • OC-192/STM-64 • OTU2 with G.709 GFEC or G.975.1 I.4 EFEC • 88 channel tunable • Fixed DWDM • Grey light
		<ul style="list-style-type: none"> • 120 Gbps fabricless VC-4/STS-1 switch in 7100 Nano • 280 Gbps VC-4/STS-1 switch in 7100 OTS with SPFAB • VLAN grooming on client interfaces • VCAT/LCAS/GFP-F support for EoS services • UPSR and SNCP on client side SONET/SDH facilities • LAG protection for Ethernet facilities • 1+1 APS for SONET/SDH client side facilities with paired modules • 1+1 APS, SNCP, and UPSR for line side protection • VC-4/STS-1 ASON/GMPLS support • PRBS test and loopback • Synchronization Status Message (SSM) support 	
SMTM-UX 	SONET/SDH ADM	10x SFP	<ul style="list-style-type: none"> • OC-3/STM-1, OC-12/STM-4, OC-48/STM-16 • 100M Ethernet • Gigabit Ethernet • Fibre Channel/FICON: 1G, 2G, 4G • ISC: 1G, 2G • ESCON • DVB-ASI
		1x XFP	<ul style="list-style-type: none"> • OTU2 with G.709 GFEC or G.975.1 I.4 EFEC • 88 channel tunable • Fixed DWDM • Grey light
		<ul style="list-style-type: none"> • VC-4 and STS-1 switching (40 Gbps on paired ADM) • UPSR and SNCP on client side SONET/SDH facilities • 1+1 APS for SONET/SDH client side facilities with paired modules • 1+1 APS, SNCP, and UPSR for line side protection • PRBS test and loopback • Synchronization Status Message (SSM) support 	

PACKET SWITCHING MODULES

The 7100 Series supports four packet switching modules: the PSM-1S, the PSM-2S, the PSM-2C, and the ESM20. The 92 Gbps PSM-1S provides twelve GbE SFP ports, four SFP/SFP+ ports with support for 10GbE or 10/100/1000M Ethernet, and 4 SFP+ ports with support for 10GbE or OTU2. The 200 Gbps PSM-2S provides sixteen SFP/SFP+ ports with support for 10GbE or 10/100/1000M Ethernet, and 4 SFP+ ports with support for 10GbE or OTU2. The 200 Gbps PSM-2C provides one CFP interface with support for 100GbE and OTU4, eight SFP+ ports with support for 10GbE or OTU2, and two SFP/SFP+ ports with support for 10GbE or 10/100/1000M Ethernet. Fabricless switching via the meshed backplane enables an aggregate 1.2 Tbps of packet interface capacity in the 7100 Nano or a 400 Gbps packet switch in the 7100 Pico. Software-defined protocol options include Ethernet Bridging, VLAN cross-connects, and MPLS-TP/VPLS. Features include G.8031 VLAN protection, G.8131 MPLS-TP LSP protection, G.8032 ERP, Y.1731/802.1ag Ethernet OAM, RFC 2544/Y.1564 Ethernet testing, and MPLS-TP IETF-based LSP fault management. For more details, see the Packet Switching Modules (PSM-2C/PSM-2S) and Packet Switching Module (PSM-1S) datasheets.

The 20 Gbps ESM20 provides two 10G XFP ports and sixteen 10/100/1000M Ethernet SFP ports. It supports a comprehensive Carrier Ethernet feature set including 802.1ad (QinQ), RSTP, G.8031 VLAN protection, G.8032 ERP, 802.1AX LAG, 802.1ag/802.3ah OAM, and QoS mechanisms including policing, shaping, and weighted fair queuing. Six ESM20s can deliver a 120 Gbps Ethernet switch in the 7100 Nano, while fourteen ESM20s can deliver a 280 Gbps Ethernet switch when deployed in the 7100 OTS with SPFAB fabric modules.

PACKET SWITCHING MODULES			
Module	Function	Interfaces	Supported Protocols
PSM-1S 	Packet Switch (92G per Module)	4x SFP+	<ul style="list-style-type: none"> • 10GbE • OTU2-wrapped 10GbE (G.709 GFEC, G.975.1 I.4 EFEC, or G.975.1 I.7 EFEC) • 88 channel tunable, fixed DWDM, CWDM, grey light
		4x SFP+	<ul style="list-style-type: none"> • 10/100/1000M Ethernet • 10GbE
		12x SFP	<ul style="list-style-type: none"> • 1GbE
		<ul style="list-style-type: none"> • MEF CE 2.0 Certified • Ethernet Bridging, VLAN cross-connect, and MPLS-TP • Ethernet OAM, 802.1ag/Y.1731, 802.3ah, RFC2544, Y.1564 • Ethernet Protection: 802.1AX LAG, RSTP, MSTP, G.8031 1:1 VLAN protection, G.8032 ERP • MPLS-TP: 1:1 LSP protection, IETF LSP FM, static H-VPLS, LSP traceroute, PW AIS • PRBS test and loopback; in-band VLAN management • See Packet Switching Module (PSM-1S) datasheet for details 	
PSM-2S 	Packet Switch (200G per Module)	4x SFP+	<ul style="list-style-type: none"> • 10GbE • OTU2-wrapped 10GbE (G.709 GFEC, G.975.1 I.4 EFEC, or G.975.1 I.7 EFEC) • 88 channel tunable, fixed DWDM, CWDM, grey light
		16x SFP/SFP+	<ul style="list-style-type: none"> • 10/100/1000M Ethernet • 10GbE
		<ul style="list-style-type: none"> • MEF CE 2.0 Certified • Ethernet Bridging, VLAN cross-connect, and MPLS-TP • Ethernet OAM, 802.1ag/Y.1731, 802.3ah, RFC2544, Y.1564 • Ethernet Protection: 802.1AX LAG, RSTP, MSTP, G.8031 1:1 VLAN protection, G.8032 ERP • MPLS-TP: 1:1 LSP protection, IETF LSP FM, static H-VPLS, LSP traceroute, PW AIS • PRBS test and loopback; in-band management (VLAN, GCC) • Extended temperature support (-40°C to +65°C) • See Packet Switching Modules (PSM-2C/PSM-2S) datasheet for details 	
		<ul style="list-style-type: none"> • MEF CE 2.0 Certified • Ethernet Bridging, VLAN cross-connect, and MPLS-TP • Ethernet OAM, 802.1ag/Y.1731, 802.3ah, RFC2544, Y.1564 • Ethernet Protection: 802.1AX LAG, RSTP, MSTP, G.8031 1:1 VLAN protection, G.8032 ERP • MPLS-TP: 1:1 LSP protection, IETF LSP FM, static H-VPLS, LSP traceroute, PW AIS • PRBS test and loopback; in-band management (VLAN, GCC) • See Packet Switching Modules (PSM-2C/PSM-2S) datasheet for details 	
PSM-2C 	Packet Switch (200G per Module)	8x SFP+	<ul style="list-style-type: none"> • 10GbE • OTU2-wrapped 10GbE (G.709 GFEC, G.975.1 I.4 EFEC, or G.975.1 I.7 EFEC) • 88 channel tunable, fixed DWDM, CWDM, grey light
		2x SFP/SFP+	<ul style="list-style-type: none"> • 10GbE • 10/100/1000M Ethernet
		1x CFP	<ul style="list-style-type: none"> • 100GbE • OTU4: grey light, coherent DWDM
		<ul style="list-style-type: none"> • MEF CE 2.0 Certified • Ethernet Bridging, VLAN cross-connect, and MPLS-TP • Ethernet OAM, 802.1ag/Y.1731, 802.3ah, RFC2544, Y.1564 • Ethernet Protection: 802.1AX LAG, RSTP, MSTP, G.8031 1:1 VLAN protection, G.8032 ERP • MPLS-TP: 1:1 LSP protection, IETF LSP FM, static H-VPLS, LSP traceroute, PW AIS • PRBS test and loopback; in-band management (VLAN, GCC) • See Packet Switching Modules (PSM-2C/PSM-2S) datasheet for details 	

Module	Function	Interfaces	Supported Protocols
ESM20 	Ethernet Switch (20G per Module)	16x SFP	• 10/100/1000M Ethernet
		2x XFP	• 10GbE • OTU2-wrapped 10GbE (G.709 GFEC or G.975.1 I.4 EFEC)
		<ul style="list-style-type: none"> • MEF CE 1.0 Certified • Valid configurations include 16x SFP, 8x SFP + 1x XFP, 2x XFP, or 12x1GbE + 1x10G • Ethernet Bridging (802.1ad) • Ethernet protection: 802.1AX LAG, RSTP, MSTP, G.8031, G.8032 • Ethernet OAM: 802.1ag/Y.1731, 802.3ah • Ethernet QoS: Policing, shaping weighted fair queuing and round robin, 8K queues per module • Synchronous Ethernet, PRBS test and loopback 	

CORIAN 7100 ISM SUMMARY AND SHELF COMPATIBILITY TABLE

Module	Type	Interfaces	# of Slots	Supported 7100 Shelves		
				Pico	Nano	OTS
HDTG	5x10G Transponder	10xXFP	1	-	X	X
HDTG2	8x10G Transponder	16xSFP+	1	X	X	X
OMM-X	10G Muxponder/ADM	8xSFP, 2xXFP	1	X	X	X
HGTM	100G Transponder	CFP, Coherent Line	2	-	X	X
HGTM-S	100G Transponder	CFP4, CFP	1	X	X	X
HGTM-S2	100G Transponder	CFP4, CFP2-ACO	1	X	X	X
HGTM-M	100G Muxponder	10xSFP+, Coherent Line	2	-	X	X
HGTM-MS	100G Muxponder	10xSFP+, CFP	1	X	X	X
HGTM-MS2	100G Muxponder/ADM	10xSFP+, CFP2-ACO	1	X	X	X
OSM20	OTN Switching	16xSFP, 2xXFP	1	-	X	X
SSM-X	SONET/SDH Switching with Ethernet Grooming	12xSFP, 2xXFP	1	-	X	X
SMTM-UX	SONET/SDH ADM	10xSFP, 1xXFP	1	-	X	X
PSM-1S	Packet Switching	12xSFP, 4xSFP/SFP+, 4xSFP+	1	-	X	-
PSM-2S	Packet Switching	16xSFP/SFP+, 4xSFP+	1	X	X	-
PSM-2C	Packet Switching	2xSFP/SFP+, 8xSFP+, CFP	1	X	X	-
ESM20	Ethernet Switching	16xSFP, 2xXFP	1	-	X	X

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