

# 100G to 1.6T Optical Module PHY Product Selection Guide

Broadcom’s Optical Module PHY portfolio spans multiple technology nodes – 16nm, 7nm and now 5nm, with data rates from 100 Gbs to 1.6 Tbs. Comprising five flagship platforms, Centenario, Jesko, Portofino, Gemera, and Cygnus, Broadcom’s DSP PAM-4 portfolio covers 100G, 400G, 800G, and 1.6T PMDs respectively, and are uniquely positioned to meet the “Cost per GB” and “Power per GB” requirements of the hyperscale datacenter and AI network, enterprise and telecom customers.

## BCM87800/87803/87840/87843

- Hyperscale data center deployments inside 800G QSFP-DD/OSFP, and 400G QSFP112 optical modules
- 800G DR8 & 2x400G DR4/FR4/LR4 400G SR4, DR4, FR4
- 7nm process node
- Optional bare die sale; co-packaged optical solutions
- Direct drive, non-direct drive options
- Production released

## BCM87400/87402/87106/87101

- Hyperscale data center deployments inside 400G QSFP-DD/OSFP and 100G QSFP28/SFP-DD optical modules
- 400G DR4/FR4/LR4 100G DR1/FR1/LR1
- 7nm process node
- Optional bare die sale
- Direct drive, non-direct drive options
- Production released

## BCM87416

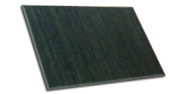
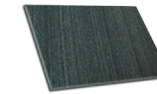
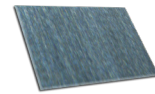
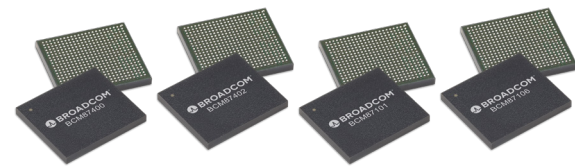
- Hyperscale data center deployments inside 400G QSFP-DD/OSFP optical modules
- 400G DR4/FR4/LR4
- 7nm process node
- Integrated TIA and driver for EML and SiPh solutions
- Bare die sale
- Production released

## BCM87812

- Hyperscale data center deployments inside 800G QSFP-DD/OSFP optical modules
- 800G DR8 & 2x400G DR4/FR4/LR4
- 7nm process node
- Integrated TIA and driver for EML and SiPh solutions
- Bare die sale
- Sampling

## BCM85812

- Hyperscale data center deployments inside 800G QSFP-DD/OSFP and 1.6T OSFP-XD optical modules
- 800G DR8 & 2x400G DR4/FR4/LR4 1.6T 4x400G DR4/FR4/LR4 & 2x800G DR8
- 5nm process node
- Integrated TIA and driver for EML and SiPh solutions
- Bare die sale
- Sampling



Part Number	Platform	Process Node	Client Side (Data Rate/ch)	Line Side (Data Rate/ch)	Configuration	Application	Module Form Factor
BCM87800	Portofino	7nm	100G	100G	8:8	2X400G FR4/ 800G DR8	QSFPDD, OSFP
BCM87803 (DD)	Portofino	7nm	100G	100G	8:8	2X400G FR4/ 800G DR8	QSFPDD, OSFP
BCM87840	Portofino	7nm	100G	100G	4:4	400G SR4/FR4	QSFP112
BCM87843 (DD)	Portofino	7nm	100G	100G	4:4	400G SR4/FR4	QSFP112
BCM87812 (DD/TIA)	Gemera	7nm	100G	100G	8:8	2X400G FR4/ 800G DR8	QSFPDD, OSFP
BCM85814	Cygnus	5nm	100G	100G	8:8	2X400G FR4/ 800G DR8	QSFPDD, OSFP
BCM85812 (DD/TIA)	Cygnus	5nm	100G	100G	8:8	2X400G FR4/ 800G DR8	QSFPDD, OSFP
BCM87400	Centenario	7nm	50G	100G	8:4	400G DR4/FR4/LR4	QSFPDD, OSFP
BCM87402 (DD)	Centenario	7nm	50G	100G	8:4	400G DR4/FR4/LR4	QSFPDD, OSFP
BCM87106	Centenario	7nm	25G/50G	100G	4:1/2:1	100G DR1/FR1/LR1	QSFP28
BCM87101 (DD)	Centenario	7nm	25G/50G	100G	4:1/2:1	100G DR1/FR1/LR1	QSFP28
BCM87416 (DD/TIA)	Jesko	7nm	50G	100G	8:4	400G DR4/FR4/LR4	QSFPDD, OSFP
BCM87100	C18	7nm	25G/50G/100G	100G	1:1	100G DR1/FR1/LR1	SFP112
BCM87540	Estoque2	7nm	50G	50G	4:4	200G SR4/FR4	QSFP56
BCM87542 (DD)	Estoque2	7nm	50G	50G	4:4	200G SR4/FR4	QSFP56
BCM87580	Estoque2	7nm	50G	50G	8:8	400G SR8/LR8	QSFPDD, OSFP
BCM87582 (DD)	Estoque2	7nm	50G	50G	8:8	400G SR8/LR8	QSFPDD, OSFP
BCM81124	Berlinetta2	16nm	25G/50G	50G	4:2/2:2	100G SR1.2/SR2	QSFP28
BCM81182	Millennio2	16nm	50G	50G	8:8	400G SR4.2	QSFPDD, OSFP

# High Speed Optical PHY Product Selection Guide

## Broadest & Highest Performance Portfolio for Linecard Applications

### BCM85361

- Application — retimer/cross-point
- Hyperscale data center & service provider deployments
- 10G - 1.6T (single-lane 106G)
- 5nm process node
- Sampling



### BCM85748

- Application — retimer/gearbox/mux/cross-point
- Hyperscale data center & service provider deployments
- 10G - 800G
- 5nm process node
- Sampling



### BCM85344

- Application — MACsec / IPsec / PTP
- Hyperscale data center & service provider deployments
- 10G - 1.6T
- 5nm process node
- Sampling



### BCM81385

- Application — 1588 PTP, Class-C+
- Service Provider deployments
- 10G - 400G
- 16nm Process Node
- Product Released



Part Number	Application	Process Node	System Side (Data Rate/ch)	Line Side (Data Rate/ch)	Retimer	Gearbox	Mux, Crosspoint	MACsec	1588	Primary Form Factor	No. of 800G Ports Supported	No. of 400G Ports Supported	No. of 200G Ports Supported	No. of 100G Ports Supported	No. of 10G Ports Supported
BCM85361	Frontpanel	5nm	PAM-4 (106G)	PAM-4(106G)	Yes	Yes	Yes	No	No	QSFP-112, SFP-112	2	4	8	16	16
BCM85344	Frontpanel	5nm	PAM-4 (106G)	PAM-4(106G)	Yes	Yes	Yes	Yes	Yes	QSFP-112, SFP-112	2	4	8	16	16
BCM87360	Frontpanel	7nm	PAM-4 (106G)	PAM-4 (106G)	Yes	No	Yes	No	No	QSFP-112, SFP-112	1	2	4	8	N/A
BCM87326	Frontpanel	7nm	PAM-4 (50G)	PAM-4 (50G)	Yes	Yes	Yes	No	No	QSFP-DD, SFP-56	N/A	2	4	8	16
BCM87728	Frontpanel	7nm	PAM-4 (50G)	NRZ (25G)	Yes	Yes	No	No	No	QSFP-28	N/A	1	2	4	16
BCM81724	Frontpanel	16nm	PAM-4 (50G)	NRZ (25G)	Yes	Yes	No	No	No	QSFP-28	N/A	1	2	4	16
BCM81725	Frontpanel	16nm	PAM-4 (50G)	PAM-4 (50G)	Yes	No	Yes	No	No	QSFP-DD	N/A	2	4	8	16
BCM81356	Frontpanel	16nm	PAM-4 (50G)	PAM-4 (50G)	Yes	Yes	Yes	No	No	QSFP-DD, SFP-56	N/A	2	4	8	16
BCM81358	Frontpanel	16nm	PAM-4 (50G)	PAM-4 (50G)	Yes	Yes	Yes	No	No	QSFP-DD, SFP-56	N/A	1	2	4	8
BCM81338	Backplane	16nm	PAM-4 (50G)	PAM-4 (50G)	Yes	No	Yes	No	No	Backplane	N/A	1	2	4	8
BCM81381	Frontpanel	16nm	NRZ (25G)	NRZ (25G)	Yes	No	Yes	No	No	QSFP-28, SFP-28	N/A	N/A	N/A	2	8
BCM81384	Frontpanel	16nm	NRZ (25G)	NRZ (25G)	Yes	Yes	Yes	No	Yes	QSFP-28	N/A	N/A	N/A	4	16
BCM81385	Frontpanel	16nm	NRZ (25G)	NRZ (25G)	Yes	Yes	Yes	No	Yes	QSFP-28	N/A	N/A	N/A	2	8
BCM81343	Frontpanel	16nm	PAM-4 (50G), NRZ (25G)	PAM-4 (50G)	Yes	Yes	Yes	Yes	Yes	QSFP-DD, SFP-56	N/A	2	2	8	16
BCM81394	Frontpanel	16nm	PAM-4 (50G), NRZ (25G)	NRZ (25G)	Yes	Yes	Yes	Yes	Yes	QSFP-28	N/A	N/A	N/A	4	16
BCM81392	Frontpanel	16nm	NRZ (25G)	NRZ (25G)	Yes	Yes	Yes	Yes	Yes	QSFP-28	N/A	N/A	N/A	2	8
BCM82381	Frontpanel	28nm	NRZ (25G)	NRZ (25G)	Yes	No	Yes	No	No	QSFP-28, SFP-28	N/A	N/A	N/A	2	8
BCM82380	Frontpanel	28nm	NRZ (25G)	NRZ (25G)	Yes	No	Yes	No	No	QSFP-28, SFP-28	N/A	N/A	N/A	1	4
BCM82072	Backplane	28nm	NRZ (25G)	NRZ (25G)	Yes	No	Yes	No	No	Backplane	N/A	N/A	N/A	2	8
BCM82209	Backplane	28nm	NRZ (25G)	NRZ (25G)	Yes (Simplex)	No	Yes	No	No	Backplane	N/A	N/A	N/A	2	8
BCM82012	Backplane	28nm	NRZ (25G)	NRZ (25G)	Yes (Simplex)	No	Yes	No	No	Backplane	N/A	N/A	N/A	3	12
BCM82391	Frontpanel	28nm	NRZ (25G)	NRZ (25G)	Yes	Yes	Yes	Yes	No	QSFP-28	N/A	N/A	N/A	2	8
BCM82398	Frontpanel	28nm	NRZ (25G)	NRZ (25G)	Yes	Yes	Yes	Yes	Yes	QSFP-28	N/A	N/A	N/A	2	8
BCM82328	Frontpanel	28nm	NRZ (10G)	NRZ (10G)	Yes	No	No	No	No	QSFP+, SFP+	N/A	N/A	N/A	N/A	8
BCM82322	Frontpanel	28nm	NRZ (10G)	NRZ (10G)	Yes	No	No	No	No	QSFP+, SFP+	N/A	N/A	N/A	N/A	12
BCM82752	Frontpanel	28nm	NRZ (10G)	NRZ (10G)	Yes	No	Yes	No	Yes	SFP+	N/A	N/A	N/A	N/A	2
BCM82758	Frontpanel	28nm	NRZ (10G)	NRZ (10G)	Yes	No	Yes	No	Yes	SFP+	N/A	N/A	N/A	N/A	4
BCM82780	Frontpanel	28nm	NRZ (10G)	NRZ (10G)	Yes	No	Yes	No	Yes	SFP+	N/A	N/A	N/A	N/A	8
BCM82759	Frontpanel	28nm	NRZ (10G)	NRZ (10G)	Yes	Yes	Yes	Yes	Yes	SFP+	N/A	N/A	N/A	N/A	2
BCM82756	Frontpanel	28nm	NRZ (10G)	NRZ (10G)	Yes	Yes	Yes	Yes	Yes	SFP+	N/A	N/A	N/A	N/A	4
BCM84324	Frontpanel	40nm	NRZ (10G)	NRZ (10G)	Yes	No	No	No	No	QSFP+, SFP+	N/A	N/A	N/A	N/A	4
BCM84328	Frontpanel	40nm	NRZ (10G)	NRZ (10G)	Yes	No	No	No	No	QSFP+, SFP+	N/A	N/A	N/A	N/A	8

# High Speed Copper PHY Product Selection Guide

Broadcom's Active Copper PHY portfolio enables DAC cable providers to build very low insertion-loss profile, ultra-low latency, ultra-low power cables for 100G/400G/800G/1.6T hyperscale/AI networks with superior analog/DSP SerDes technology in 5nm, 7nm & 16nm.

Part Number	Process Node	Application	Function	Client Side (Data Rate/ch)	Line Side (Data Rate/ch)	Configuration	Module Form Factor
BCM87850	7nm	Active Cable (X, Y)	Retimer	PAM-4 (106G)	PAM-4 (106G)	8:8	QSFP-DD, OSFP, QSFP-112
BCM87851	7nm	Active Cable (X, Y)	Retimer	PAM-4 (106G)	PAM-4 (106G)	4:4	QSFP-112
BCM81181	16nm	Active Cable (X)	Retimer	PAM-4 (53G)	PAM-4 (53G)	8:8	QSFP-DD, OSFP
BCM81100	16nm	Active Cable (X, Y)	Hitless-Mux	NRZ (25G)/NRZ (50G)	NRZ (25G)/NRZ (50G)	4:8, 1:2	QSFP28
BCM85852	5nm	Active Cable (X, Y)	Retimer	PAM-4 (106G)	PAM-4 (106G)	16:16	OSFP-XD
BCM87850	7nm	Active Cable (X, Y)	Retimer	PAM-4 (106G)	PAM-4 (106G)	16:16	OSFP-XD

# High Speed PCIe and CXL Retimer PHY Product Selection Guide

Broadcom's 5nm PCIe and CXL PHY portfolio offers industry's lowest power, lowest latency and best performing retimer products, enabling Data Center Server and Storage manufacturers to build most technologically advanced and efficient high-end computing solutions.

Part Number	PCIe Gen	CXL Gen	Process Node	Max Data Rate	IL performance	Channel	Package Dimensions	No. of x16 Link	No. of x8 Link	No. of x4 Links	No. of x2 links
BCM85657	Gen5	2.0	5nm	32G NRZ	>36 DB	x16	8.9 mm x 22.8 mm	1	2	4	8
BCM85658	Gen5	2.0	5nm	32G NRZ	>36 DB	x8	8.5 mm x 13.4 mm	N/A	1	2	4