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CB64S2CAA-Type DWDM Compatible 10 Gbits/s Transponder with 16-Ch. 622 Mbits/s MUX/DeMUX and Selectable FEC Rate

- Provides 10 Gbits/s electrical system diagnostics loopback (scaled by 15/14 when operating at the FEC rate)

- Operating case temperature range: 0 °C to 65 °C

- Compact size: 4 in. x 3.5 in. x 0.53 in.

- Fully compatible with 300-pin,10 Gbits/s transponder MSA

- Pigtailed low-profile package with choice of industry-standard connectors

Applications

- Telecommunications:
    - DWDM optical networking
    - Inter- and intraoffice SONET/SDH
    - Metropolitan area networks
    - Subscriber loop

- High-speed data communications

Features

- Supports standard OC-192/STM-64 data rate of 9.9532 Gbits/s, FEC rate of 10.6642 Gbits/s, and the Ethernet rate of 10.3 Gbits/s

- Cooled 1.5 μm EML laser transmitter and PIN receiver

- Available at DWDM ITU compatible wavelengths with 100 GHz spacing

- Available with optional internal reference clock clean-up circuit for improved jitter performance

- Differential LVDS data interface

- Automatic transmitter optical power control

- Laser bias monitor output

- Optical transmitter enable input

- Laser degrade alarms

- Laser back-facet monitor output

- Laser temperature monitor/alarm output

- Receiver loss of power (LOP) analog output

- Transponder alarm interrupt

- Selectable MUX reference input clock: 155.52 MHz or 622.08 MHz (scaled by 15/14 when operating at the FEC rate)

Description

The CB64S2CAA-type transponder is a bidirectional module designed to provide a SONET or SDH compliant electro-optical interface between the SONET/SDH photonic physical layer and the electrical section layer. The module contains a 10 Gbits/s optical transmitter and a 10 Gbits/s optical receiver in the same physical package along with the electronics necessary to multiplex and demultiplex sixteen 622 Mbits/s electrical channels. Clock synthesis and clock recovery circuits are also included within the module. The module also supports 10 GbE Ethernet rate of 10.3 Gbits/s and FEC rate of 10.6642 Gbits/s, and all input and output clock and data rates are scaled by 15/14 when operating at the FEC rate of 10.6642 Gbits/s.

Figure 1 shows a simplified block diagram of the CB64S2CAA-Type transponder.

Description (continued)

In the transmitting direction, the transceiver module multiplexes sixteen 622.08 Mbits/s differential LVDS compatible electrical data signals into an optical signal at 9.95328 Gbits/s for launching into optical fiber. The optical transmitter is available with a cooled, field-proven 1.55 µm EML laser at 100 GHz wavelength spacing for DWDM transport, up to 40 km, intermediate-reach (IR-2) applications. An optional internal reference clock cleanup circuit within CB64S2CAA provides improved jitter performance.

The optical output signal is SONET and ITU compliant for OC-192/STM-64 applications.

In the receiving direction, the transceiver module receives a 9.95328 Gbits/s optical signal and converts it to an electrical signal, extracts a clock signal, then demultiplexes the data into sixteen 622 Mbits/s differential LVDS compatible data signals. The receiver operates over the wavelength range of 1.1 µm to 1.6 µm, and is fully compliant to SONET/SDH OC-192/STM-64 physical layer specifications.

Block Diagram*
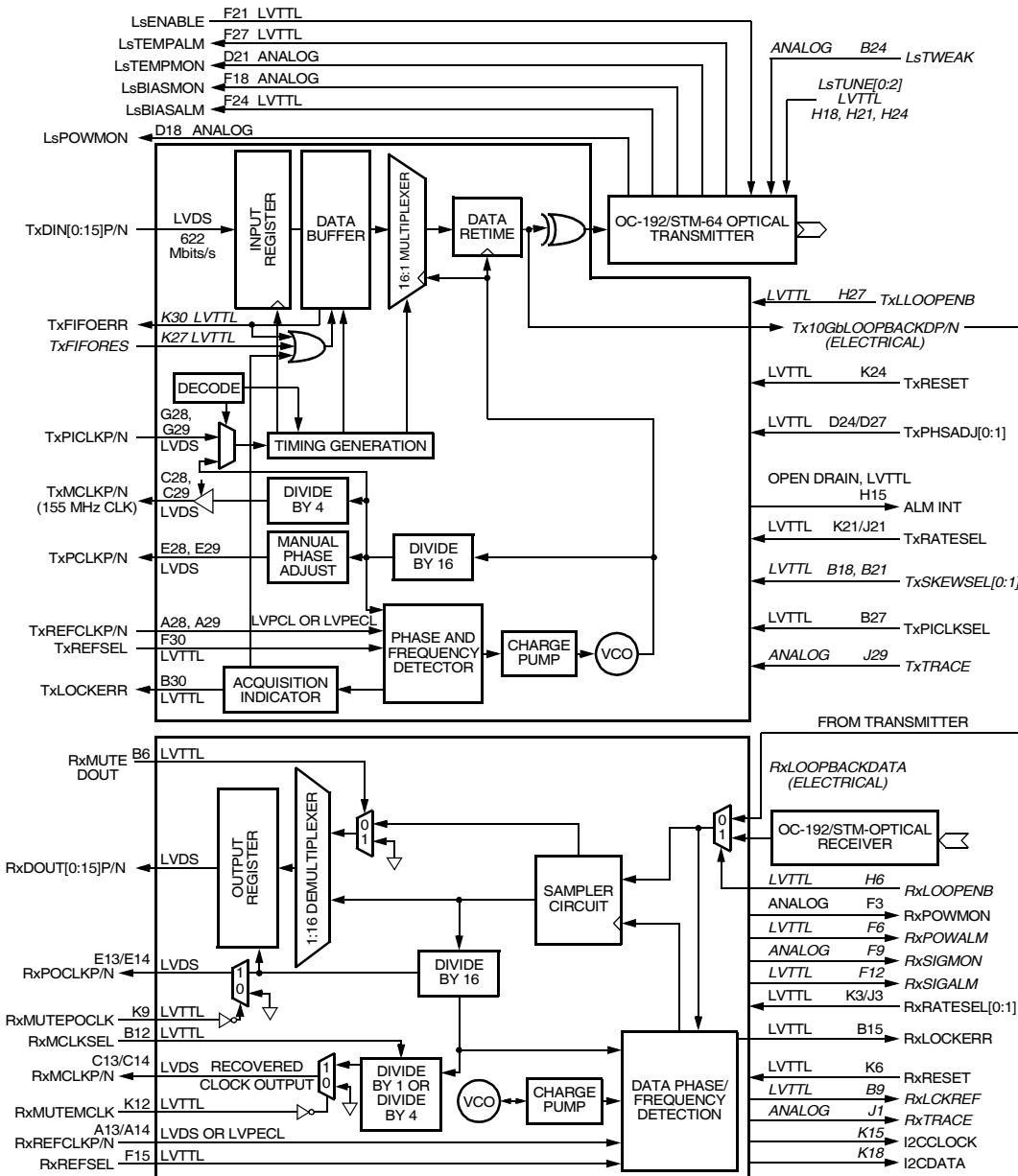
* Signals referenced in italics are for future use.

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Figure 1. CB64S2CAA-Type Transponder Block Diagram

Ordering Information

Table 1. Ordering Information

Parameter		Device Description					
ITU-T Wave-length (nm)	Frequency (THz)	No Reference Clock Filter		622 MHz VCO Ref. Clock Filter		155 MHz VCO Ref. Clock Filter	
		Code	Comcode	Code	Comcode	Code	Comcode
1530—1565	—	CB64S2CAA	109120584	CB6AS2CAA	109120592	CB6BS2CAA	109120600
1530.33	195.9	CB64S2C59	TBD	CB6AS2C59	TBD	CB6BS2C59	TBD
1531.12	195.8	CB64S2C58	TBD	CB6AS2C58	TBD	CB6BS2C58	TBD
1531.90	195.7	CB64S2C57	TBD	CB6AS2C57	TBD	CB6BS2C57	TBD
1532.68	195.6	CB64S2C56	TBD	CB6AS2C56	TBD	CB6BS2C56	TBD
1533.47	195.5	CB64S2C55	TBD	CB6AS2C55	TBD	CB6BS2C55	TBD
1534.25	195.4	CB64S2C54	TBD	CB6AS2C54	TBD	CB6BS2C54	TBD
1535.04	195.3	CB64S2C53	TBD	CB6AS2C53	TBD	CB6BS2C53	TBD
1535.82	195.2	CB64S2C52	TBD	CB6AS2C52	TBD	CB6BS2C52	TBD
1536.61	195.1	CB64S2C51	TBD	CB6AS2C51	TBD	CB6BS2C51	TBD
1537.40	195.0	CB64S2C50	TBD	CB6AS2C50	TBD	CB6BS2C50	TBD
1538.19	194.9	CB64S2C49	TBD	CB6AS2C49	TBD	CB6BS2C49	TBD
1538.98	194.8	CB64S2C48	TBD	CB6AS2C48	TBD	CB6BS2C48	TBD
1539.77	194.7	CB64S2C47	TBD	CB6AS2C47	TBD	CB6BS2C47	TBD
1540.56	194.6	CB64S2C46	TBD	CB6AS2C46	TBD	CB6BS2C46	TBD
1541.35	194.5	CB64S2C45	TBD	CB6AS2C45	TBD	CB6BS2C45	TBD
1542.14	194.4	CB64S2C44	TBD	CB6AS2C44	TBD	CB6BS2C44	TBD
1542.94	194.3	CB64S2C43	TBD	CB6AS2C43	TBD	CB6BS2C43	TBD
1543.73	194.2	CB64S2C42	TBD	CB6AS2C42	TBD	CB6BS2C42	TBD
1544.53	194.1	CB64S2C41	TBD	CB6AS2C41	TBD	CB6BS2C41	TBD
1545.32	194.0	CB64S2C40	TBD	CB6AS2C40	TBD	CB6BS2C40	TBD
1546.12	193.9	CB64S2C39	TBD	CB6AS2C39	TBD	CB6BS2C39	TBD
1546.92	193.8	CB64S2C38	TBD	CB6AS2C38	TBD	CB6BS2C38	TBD
1547.72	193.7	CB64S2C37	TBD	CB6AS2C37	TBD	CB6BS2C37	TBD
1548.51	193.6	CB64S2C36	TBD	CB6AS2C36	TBD	CB6BS2C36	TBD
1549.32	193.5	CB64S2C35	TBD	CB6AS2C35	TBD	CB6BS2C35	TBD
1550.12	193.4	CB64S2C34	TBD	CB6AS2C34	TBD	CB6BS2C34	TBD
1550.92	193.3	CB64S2C33	TBD	CB6AS2C33	TBD	CB6BS2C33	TBD
1551.72	193.2	CB64S2C32	TBD	CB6AS2C32	TBD	CB6BS2C32	TBD
1552.52	193.1	CB64S2C31	TBD	CB6AS2C31	TBD	CB6BS2C31	TBD
1553.33	193.0	CB64S2C30	TBD	CB6AS2C30	TBD	CB6BS2C30	TBD
1554.13	192.9	CB64S2C29	TBD	CB6AS2C29	TBD	CB6BS2C29	TBD
1554.94	192.8	CB64S2C28	TBD	CB6AS2C28	TBD	CB6BS2C28	TBD
1555.75	192.7	CB64S2C27	TBD	CB6AS2C27	TBD	CB6BS2C27	TBD
1556.56	192.6	CB64S2C26	TBD	CB6AS2C26	TBD	CB6BS2C26	TBD
1557.36	192.5	CB64S2C25	TBD	CB6AS2C25	TBD	CB6BS2C25	TBD
1558.17	192.4	CB64S2C24	TBD	CB6AS2C24	TBD	CB6BS2C24	TBD
1558.98	192.3	CB64S2C23	TBD	CB6AS2C23	TBD	CB6BS2C23	TBD
1559.79	192.2	CB64S2C22	TBD	CB6AS2C22	TBD	CB6BS2C22	TBD
1560.61	192.1	CB64S2C21	TBD	CB6AS2C21	TBD	CB6BS2C21	TBD
1561.42	192.0	CB64S2C20	TBD	CB6AS2C20	TBD	CB6BS2C20	TBD
1562.23	191.9	CB64S2C19	TBD	CB6AS2C19	TBD	CB6BS2C19	TBD

Ordering Information (continued)

Table 1. Ordering Information (continued)

Parameter		Device Description			
ITU-T Wavelength (nm)	Frequency (THz)	666 MHz VCO Reference Clock Filter		166 MHz VCO Reference Clock Filter	
		Code	Comcode	Code	Comcode
1530—1565	—	CB6CS2CAA	109120618	CB6DS2CAA	109120626
1530.33	195.9	CB6CS2C59	TBD	CB6DS2C59	TBD
1531.12	195.8	CB6CS2C58	TBD	CB6DS2C58	TBD
1531.90	195.7	CB6CS2C57	TBD	CB6DS2C57	TBD
1532.68	195.6	CB6CS2C56	TBD	CB6DS2C56	TBD
1533.47	195.5	CB6CS2C55	TBD	CB6DS2C55	TBD
1534.25	195.4	CB6CS2C54	TBD	CB6DS2C54	TBD
1535.04	195.3	CB6CS2C53	TBD	CB6DS2C53	TBD
1535.82	195.2	CB6CS2C52	TBD	CB6DS2C52	TBD
1536.61	195.1	CB6CS2C51	TBD	CB6DS2C51	TBD
1537.40	195.0	CB6CS2C50	TBD	CB6DS2C50	TBD
1538.19	194.9	CB6CS2C49	TBD	CB6DS2C49	TBD
1538.98	194.8	CB6CS2C48	TBD	CB6DS2C48	TBD
1539.77	194.7	CB6CS2C47	TBD	CB6DS2C47	TBD
1540.56	194.6	CB6CS2C46	TBD	CB6DS2C46	TBD
1541.35	194.5	CB6CS2C45	TBD	CB6DS2C45	TBD
1542.14	194.4	CB6CS2C44	TBD	CB6DS2C44	TBD
1542.94	194.3	CB6CS2C43	TBD	CB6DS2C43	TBD
1543.73	194.2	CB6CS2C42	TBD	CB6DS2C42	TBD
1544.53	194.1	CB6CS2C41	TBD	CB6DS2C41	TBD
1545.32	194.0	CB6CS2C40	TBD	CB6DS2C40	TBD
1546.12	193.9	CB6CS2C39	TBD	CB6DS2C39	TBD
1546.92	193.8	CB6CS2C38	TBD	CB6DS2C38	TBD
1547.72	193.7	CB6CS2C37	TBD	CB6DS2C37	TBD
1548.51	193.6	CB6CS2C36	TBD	CB6DS2C36	TBD
1549.32	193.5	CB6CS2C35	TBD	CB6DS2C35	TBD
1550.12	193.4	CB6CS2C34	TBD	CB6DS2C34	TBD
1550.92	193.3	CB6CS2C33	TBD	CB6DS2C33	TBD
1551.72	193.2	CB6CS2C32	TBD	CB6DS2C32	TBD
1552.52	193.1	CB6CS2C31	TBD	CB6DS2C31	TBD
1553.33	193.0	CB6CS2C30	TBD	CB6DS2C30	TBD
1554.13	192.9	CB6CS2C29	TBD	CB6DS2C29	TBD
1554.94	192.8	CB6CS2C28	TBD	CB6DS2C28	TBD
1555.75	192.7	CB6CS2C27	TBD	CB6DS2C27	TBD
1556.56	192.6	CB6CS2C26	TBD	CB6DS2C26	TBD
1557.36	192.5	CB6CS2C25	TBD	CB6DS2C25	TBD
1558.17	192.4	CB6CS2C24	TBD	CB6DS2C24	TBD
1558.98	192.3	CB6CS2C23	TBD	CB6DS2C23	TBD
1559.79	192.2	CB6CS2C22	TBD	CB6DS2C22	TBD
1560.61	192.1	CB6CS2C21	TBD	CB6DS2C21	TBD
1561.42	192.0	CB6CS2C20	TBD	CB6DS2C20	TBD
1562.23	191.9	CB6CS2C19	TBD	CB6DS2C19	TBD

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December 2001
PB02-037TPDR