

10GBase-T Coper SFP Registers Operation's Reference

Contents

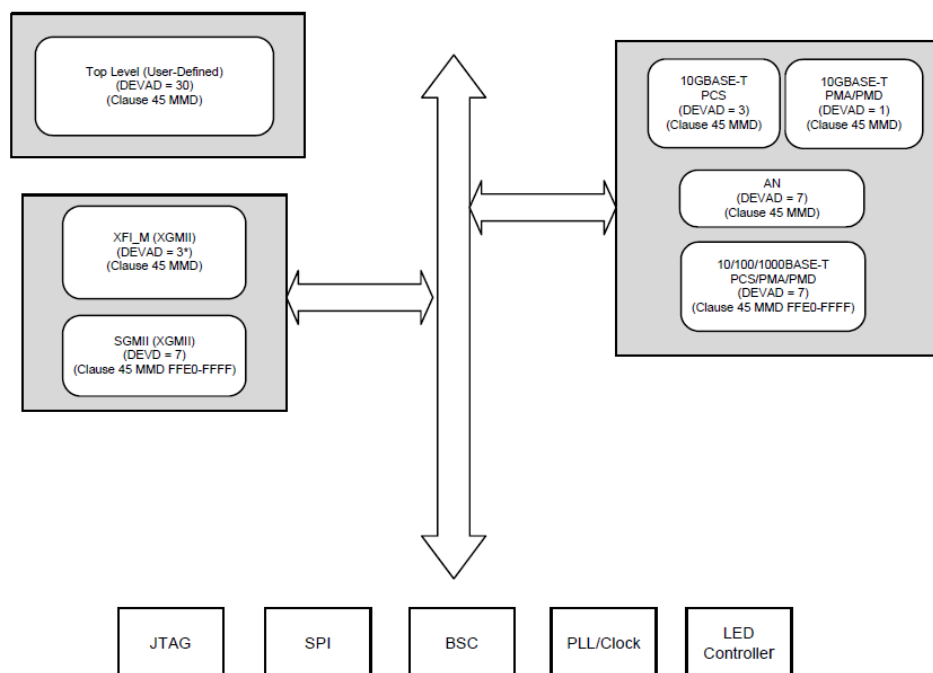
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1. Serial ID Memory Contents:

The 10GBase-T Coper SFP provides standard serial ID information compliant with SFP MSA, which can be accessed with address of A0h via the 2-wire serial CMOS EEPROM protocol.

Address	Field Size (Byte)	Name of Field	Description and Contents	Hex
Base ID Fields				
0	1	Identifier	Type of Serial transceiver (SFP)	03
1	1	Ext. Identifier	Extended identifier of type serial transceiver (MOD4)	04
2	1	Connector	Code of optical connector type (Copper)	21
3-10	8	Transceiver	10G Base-XFI to Copper or SGMII to Copper	02 00 00 00 00 08 00 00
11	1	Encoding	64B/66B(or 8B/10B)	00
12	1	BR,Nominal	Nominal baud rate, unit of 100 MBd 10.3125 GBd For 10GBase-T	67
13	1	Rate Identifier	Type of rate select functionality ,(Unspecified)	00
14	1	Length (SMF9um)-km	Link length supported for single mode fiber, units of km	00
15	1	Length (SMF9um)	Link length supported for 9/125um fiber, units of 100m	00
16	1	Length (50um)	Link length supported for 50/125um OM2 fiber, units of 10m	00
17	1	Length (62.5um)	Link length supported for 62.5/125um OM1 fiber, units of 10m	00
18	1	Length (OM4 or copper cable)	Link length supported for 50um OM4 fiber, units of 10m. Alternatively copper or direct attach cable, units of m. For copper links, this value specifies minimum link length (30m) supported by the transceiver while operating in compliance with applicable standards using copper cable.	64
19	1	Length (OM3)	Link length supported for 50 um OM3 fiber, units of 10 m	00
20-35	16	Vendor Name	SFP vendor name (ASCII), "OEM "	4F 45 4D 20 20 20 20 20 20 20 20 20 20 20 20 20
36	1	Transceiver	Code for electronic or optical compatibility	00
37-39	3	Vendor OUI	SFP vendor IEEE company ID, A value of all zero in the 3-byte field indicates that the Vendor OUI is unspecified.	00 00 00
40-55	16	Vendor PN	Part number provided by SFP vendor (ASCII) "10GBase-T C100m	31 30 47 42 61 73 65 2D 54 20 42 21 30 30 6D 20
56-59	4	Vendor rev	Part number provided by SFP vendor (ASCII) , A value of all zero in the 4-byte field indicates that the vendor revision is unspecified.(1.0 revision)	31 2E 30 20
60-61	2	Wavelength	Laser wavelength (Passive/Active Cable Specification Compliance). A value of 00h for both A0h Byte 60 and Byte 61 denotes laser wavelength or cable specification compliance is unspecified.	00 00
62	1	Unallocated		00
63	1	CC_BASE	Check code for Base ID Fields Least significant byte of Check sum of data in address 0 to 62	xx
Extended ID Fields				
64-65	2	Option	Indicates which optional transceiver signals are implemented TX_DISABLE and RX_LOS are implemented	00 12
66	1	BR, max	Upper bit rate margin, units of % A value of 00h indicates that this field is not specified	00
67	1	BR, min	Lower bit rate margin, units of % A value of 00h indicates that this field is not specified.	00
68-83	16	Vendor SN	Serial number provided by vendor (ASCII)	xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx
84-91	8	Date code	Manufacturing date code Year (2 bytes), Month (2 bytes), Day (2 bytes) vendor specific lot code, may be blank (2 bytes)	xx xx xx xx xx xx xx xx
92	1	Diagnostic Monitoring Type	Indicates which type of diagnostic monitoring is implemented (if any) in the transceiver	00
93	1	Enhanced Options	Indicates which optional enhanced features are implemented (if any) in the transceiver	00
94	1	SFF-8472Compliance	Indicates which revision of SFF-8472 the transceiver complies with. A value of 00h indicates Digital diagnostic functionality not included or undefined.	00
95	1	CC_EX	Check code for the extended ID Fields (addresses 64 to 94)	xx
Vendor Specific ID Fields				
96-127	32	Vendor specific	Vendor Specific EEPROM,	all 00
128-255	128	Reserved	Reserved for SFF-8079	all 00

4. PHY Device Register Map Summary



5. Accessing PHY Device Register instructions

The customer needs to add two command lines to the device management system to implement PHY Device Register read and write operations

command 1 for configuration, command 2 for checking XGPHY status

Below is the command format

Command 1: **Write_XGPHY_Register p1 p2 p3 p4**

p1: 1st byte : 0xAC (8bits)
 p2: 2nd byte : 0b'000 + DEVAD (5 bits)
 p3: 3~4 bytes : Register Address (16 bits)
 p4: 5~6 bytes : Write Data (16 bits)

Command 2: **Read_XGPHY_Register p1 p2 p3 p4 p5 p6**

p1: 1st byte : 0xAC (8bits)
 p2: 2nd byte : 0b'001 + DEVAD (5 bits)
 p3: 3~4 bytes : Register Address (16 bits)
 p4: Delay > 1 mS (Important: for Host access Copper SFP PHY through I2C)
 p5: 0xAD (8bits)
 p6: 6~7 bytes : Read Data (16 bits)

Example: Set PHY to Work in 10GBE rate.

command format: (write below 9 commands one by one)

```
Write_PHY_Register AC 01 00 00 20 40
Write_PHY_Register AC 01 00 07 00 09
Write_PHY_Register AC 07 00 10 10 01
Write_PHY_Register AC 07 00 20 10 03
Write_PHY_Register AC 07 00 3C 00 08
Write_PHY_Register AC 07 00 40 00 00
Write_PHY_Register AC 07 80 00 00 10
Write_PHY_Register AC 07 00 00 B2 00
```