**MXP-100G interface definitions**

**Between HW-Hal and Appl modules**

**Draft V0.1 for review**

CONFIGURATION AND RETRIVING INTERFACES

1. Common Definition

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| **Definition** | **Note** |
| #define APPLSIGNALSTART (0x10000000L)  #define CONFIG\_SIG\_BASE (APPLSIGNALSTART)  #define DB\_SIG\_BASE (APPLSIGNALSTART + 0x0100L)  #define FM\_SIG\_BASE (APPLSIGNALSTART + 0x0200L)  #define PM\_SIG\_BASE (APPLSIGNALSTART + 0x0300L)  #define HAL\_SIG\_BASE (APPLSIGNALSTART + 0x0400L)  typedef struct SignalHeader {  unsigned int sigNo;  unsigned int subType;  } SignalHeader;  #define CONFIG\_NODE\_MODE\_SIG ( HAL\_SIG\_BASE + 0 )  struct ConfigNodeModeSig\_s  {  SignalHeader sigHead;  unsigned int nodeMode;  }; | Including configurations setting and status retrieving signals |
| enum PortNums {  LinePort1Num = 0, /\*100G Line(Uplink)\*/  ClientPort1Num = 1, /\*10G Client\*/  ClientPort2Num = 2,  ClientPort3Num = 3,  ClientPort4Num = 4,  ClientPort5Num = 5,  ClientPort6Num = 6,  ClientPort7Num = 7,  ClientPort8Num = 8,  ClientPort9Num = 9,  ClientPort10Num = 10,  ClientPort11Num = 11 /\*100G Client\*/  } | Port number defintions |

1. Common Node Level Provision Signal number and ohters

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| --- | --- | --- |
| **SigNo** | **Value** | **Note** |
| **NodeMode**  (unsigned int) | 0 – Transponder  1 – Muxponder | Modification causes Node to cold reboot; |
| **InitStart**  (unsigned int) | 0 – should not start initialization  1 – kick off start initialization |  |
| **InitDone**  (unsigned int) | 0 – Initialization not done  1 – Initialization done |  |
| **/Warm\_Reboot**  (file) | 0 – Warm  1 – cold | One file or register to identify Node’s Warm or cold reboot before  Driver will decide to initialize HW or not based on the input of this value |

1. Common Signal Number – Port Level Provision

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| **SigNo** | **Value** | **Note** |
| **LEDPortStatus**  (unsigned int) | 0x0 – LedColourNone  0x1 – LedColourGreen  0x2 – LedColourRed  0x3 – LedColourOrange  0x0000 – LedStateOff  0x0100 – LedStateOn  0x0200 – LedStateBlink | LEDPortStatus = (LedColour | LedState) |
| **PortAdminState**  (unsigned int) | 0 – AdminDown  1 – AdminUp  3 – Unassigned | Unassigned means default value or  no XFP/SFP plug-in |
| **PortOperationStatus**  (unsigned int) | 0 – AdminDown  1 – AdminUp  3 – Unassigned | Retrieve only |
| **PortFacilityLoopback**  (unsigned int) | 0 – Enabled  1 – Disabled | Facility loopback on client & line ports |
| **PortTerminalLoopback**  (unsigned int) | 0 – Enabled  1 – Disabled | Terminal loopback on client & line ports |
| **LaserPortITUNum**  (unsigned int) | range=(0,10119) | Frequency on client & line ports |

1. OTU4/ODU4 Line (100G) Signal Number – Port Level Provision

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| **SigNo** | **Value** | **Note** |
| **OTU4LineFecMode**  (unsigned int) | 0 – NoFecMode  1 – G709FecMode | G.709 Generic Forward Error Correction(GFEC) |
| **OTU4LineTxTti**  **OTU4LineExpTti**  **OTU4LineIcmTti** | Unsigned char[] | Transmitted TTI  Expected TTI  Incoming TTI |
| **OTU4LineTtiStatus**  (Unsigned int) | 0 – unspecified  1 – mismatch  2 – normal  3 – unavailable | TTI Status |
| **ODU4LineTxTti**  **ODU4LineExpTti**  **ODU4LineIcmTti** | Unsigned char[] | Transmitted TTI  Expected TTI  Incoming TTI |
| **ODU4LineTtiStatus**  (Unsigned int) | 0 – unspecified  1 – mismatch  2 – normal  3 – unavailable | TTI Status |
| **OTU2LineTxTti**  **OTU2LineExpTti**  **OTU2LineIcmTti** | Unsigned char[] | Transmitted TTI  Expected TTI  Incoming TTI |
| **OTU2LineTtiStatus**  (Unsigned int) | 0 – unspecified  1 – mismatch  2 – normal  3 – unavailable | TTI Status |
| **ODU2LineTxTti**  **ODU2LineExpTti**  **ODU2LineIcmTti** | (Unsigned char[]) | Transmitted TTI  Expected TTI  Incoming TTI |
| **ODU2LineTtiStatus**  (Unsigned int) | 0 – unspecified  1 – mismatch  2 – normal  3 – unavailable | TTI Status |
| **ODU4LinePayloadType**  (unsigned int) | 0 – 255 | Payload type |

1. OTU4/ODU4 Client (100G) Signal Number – Port Level Provision

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| **SigNo** | **Value** | **Note** |
| **OTU4ClientFecMode**  (unsigned int) | 0 – NoFecMode  1 – G709FecMode | G.709 Generic Forward Error Correction(GFEC) |
| **OTU4ClientTxTTI**  **OTU4ClientExpTTI**  **OTU4ClientIcmTTI** | (Unsigned char[]) | Transmitted TTI  Expected TTI  Incoming TTI |
| **OTU4ClientTTIStatus**  (Unsigned int) | 0 – unspecified  1 – mismatch  2 – normal  3 – unavailable | TTI Status |
| **ODU4ClientTxTTI**  **ODU4ClientExpTTI**  **ODU4ClientIcmTTI** | (Unsigned char[]) | Transmitted TTI  Expected TTI  Incoming TTI |
| **ODU4ClientTTIStatus**  (Unsigned int) | 0 – unspecified  1 – mismatch  2 – normal  3 – unavailable | TTI Status |
| **OTU2ClientTxTTI**  **OTU2ClientExpTTI**  **OTU2ClientIcmTTI** | (Unsigned char[]) | Transmitted TTI  Expected TTI  Incoming TTI |
| **OTU2ClientTTIStatus**  (Unsigned int) | 0 – unspecified  1 – mismatch  2 – normal  3 – unavailable | TTI Status |
| **ODU2ClientTxTTI**  **ODU2ClientExpTTI**  **ODU2ClientIcmTTI** | (Unsigned char[]) | Transmitted TTI  Expected TTI  Incoming TTI |
| **ODU2ClientTTIStatus**  (Unsigned int) | 0 – unspecified  1 – mismatch  2 – normal  3 – unavailable | TTI Status |
| **ODU4ClientPayloadType**  (unsigned int) | 0 – 255 | Payload type |

1. OCm, STMn Client Specific Signal Number

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| --- | --- | --- |
| **SigNo** | **Value** | **Note** |
| **MappingMode**  (unsigned int) | 0 – NULL  1 – PRBS  2 – CBRA  3 – CBRB  4 – RSA  5 – RSB  6 – LanPhyGFP |  |
| **ExcThresholdLevel** | 0 – E\_3  1 – E\_4  2 – E\_5 | Exc Threshold Level(SignalFailThreadLevel) |
| **DegThresholdLevel** | 0 – E\_5  1 – E\_6  2 – E\_7  3 – E\_8  4 – E-9 | Deg Threshold Level(SignalDegradeThreadLevel) |
| **SigMode** | 1 – Transparent  2 – Terminated | Signal mode |
| **J0Mode** | 0 – notApplicable  1 – specific16Byte  2 – nonSpecificSingleByte  3 – specificSingleByte  4 – string64 | J0 Format |
| **J0TxTti** | (Unsigned char[]) | J0 Transmit TTI |
| **J0ExpTti** | (Unsigned char[]) | J0 expected TTI |
| **J0Comparision**  (unsigned int) or  (bool) | 0 – Enable  1 – Disable | Set J0 Comparision |
| **J0Response**  (unsigned int) or  (bool) | 0 – Enable  1 – Disable | Set J0 response |
| **J0Incoming** | (Unsigned char[]) | Retrieve only for J0 TTI |
| **J0Status**  (unsigned int) | Unsigned int  0 – unspecified  1 – mismatch  2 – normal  3 – unavailable | Retrieve only for J0 status |

1. 10GBE Client Specific Signal Number

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| **SigNo** | **Value** | **Note** |
| **PacketIfType**  (unsigned int) | 0 – 10GbE-LAN  1 – STM64  2 – OC-192  3 – 10GbE-WAN  4 – OTU2  5 – OTU2e  6 – 8GFiberC  7 – 10GFiberC | Ethernet packet interface types |
| **ErrorFrameDrop**  (unsigned int) or  (bool) | 0 – false  1 – true | Drop error frame |
| **autoNegotiation**  (unsigned int) or  (bool) | 0 – false  1 – true | Enable auto-negotiation |
| **autoNegotiationStatus**  (unsigned int) | 1 – active  2 – complete  3 – lost\_sync  4 – not\_started  5 – unknown |  |

1. 10G FC Client Specific Signal Number

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| **SigNo** | **Value** | **Note** |
| **FcMode**  (unsigned int) | 1 – FC800  2 – FC1200 | Fiber channel mode: FC\_8G, FC\_10G |

ALARM DEFINITIONS

1. Line Port – Line Laser Alarms

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| **Definition** | **Note** |
| MXP\_LI\_OPT\_FREQMM | Line Optical Port Frequency Mismatch |
| MXP\_LI\_LAS\_OFF | Line Laser Off |
| MXP\_LI\_LAS\_NOT\_WARM | Line Laser not ready |

1. Line OTUn/ODUn(OTU4/ODU4) Alarms

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| **Definition** | **Note** |
| MXP\_LI\_OTU\_LOS | RxLOS – OTU loss of signal |
| MXP\_LI\_OTU\_LOF | RxLOF – OTU loss of frame |
| MXP\_LI\_OTU\_LOM | RxLOM – OTU loss of multiframe |
| MXP\_LI\_OTU\_TTIMM | RxPMTTIMismatch – OTU trail trace mismatch |
| MXP\_LI\_OTU\_BDI | RxBDI – OTU backward defect ind. |
| MXP\_LI\_OTU\_IAE | RxIAE – OTU Incoming Alignment Error |
| MXP\_LI\_ODU\_AIS | RxSSFODU – ODU AIS or SSF |
| MXP\_LI\_ODU\_OCI | RxOCI – ODUk OCI |
| MXP\_LI\_ODU\_LCK | RxLCK – ODUk LCK |
| MXP\_LI\_ODU\_TTIMM | RxTIM – ODUk Trail Trace Mismatch |
| MXP\_LI\_ODU\_SD | RxSD – ODUk Signal Degrade |
| MXP\_LI\_ODU\_BDI | RxBDIODU – ODUk Backward Defect Indication |
| MXP\_LI\_ODU\_PLM | RxPTMismatch – ODUk Payload Type Mismatch |

1. Line ODUn MUX/Tributory Alarms (ODU2 Trib Examples)

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| --- | --- |
| **Definition** | **Note** |
| MXP\_LI\_ODU\_AIS\_TRIB | TxTribLineSSFODU |
| MXP\_LI\_ODU\_OCI\_TRIB | TxTribLineOCI |
| MXP\_LI\_ODU\_LCK\_TRIB | TxTribLineLCK |
| MXP\_LI\_ODU\_TTIMM | TxTribLineTIM |
| MXP\_LI\_ODU\_SD\_TRIB | TxTribLineSD |
| MXP\_LI\_ODU\_BDI\_TRIB | TxTribLineBDI |
| MXP\_LI\_ODU\_PLM\_TRIB | TxTribLinePTM |

1. Client Port – Client Common Alarms

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| **Definition** | **Note** |
| MXP\_FE\_PMM | FEPortMismatch |
| MXP\_OM\_LAS\_OFF | AutoLaserOff |
| MXP\_OM\_DEGR | XFP/SFP degrade |
| MXP\_OM\_FAIL | PortFail |
| MXP\_OM\_TRMT | SfpTxFail |
| MXP\_OM\_REMV | SfpRxModulePres |
| MXP\_OM\_FAIL\_EPROM | SfpSeepFailure |
| MXP\_OM\_MISMATCH | SfpModuleMismatch |
| MXP\_OM\_NOT\_SUPP | SfpLaserTypeUnsupported |

1. Client Port – 10GBE LAN/WAN and FCnG Alarms

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| --- | --- |
| **Definition** | **Note** |
| MXP\_CL\_LAN\_LOS | FEPortMismatch |
| MXP\_CL\_LAN\_LSS | AutoLaserOff |
| MXP\_CL\_LAN\_HIBER | GigEPhyRxHiBER |
| MXP\_CL\_LAN\_ANERR | GigEPhyRxLinkDown |
| MXP\_CL\_LAN\_LFI | GigEPhyRxLocalFault |
| MXP\_CL\_LAN\_RFI | GigEPhyRxRemoteFault |

1. Client Port – OCn/STMm Alarms

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| --- | --- |
| **Definition** | **Note** |
| MXP\_CL\_SDH\_LOS | SDH/SonetRxLOS |
| MXP\_CL\_SDH\_LOF | SDH/SonetRxLOF |
| MXP\_CL\_SDH\_J0MM | SDH/SonetRxPMTTIMismatch |
| MXP\_CL\_SDH\_AIS | SDH/SonetRxAISL |
| MXP\_CL\_SDH\_SF | SDH/SonetRxSF |
| MXP\_CL\_SDH\_SD | SDH/SonetRxSD |
| MXP\_CL\_SDH\_RDI | SDH/SonetRxRDIL |

1. Client Port – OTM0.n Alarms (OTU2 Examples)

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| **Definition** | **Note** |
| MXP\_CL\_OTU\_LOS | RxLOS |
| MXP\_CL\_OTU\_LOF | RxLOF |
| MXP\_CL\_OTU\_LOM | RxLOM |
| MXP\_CL\_OTU\_TTIMM | RxPMTTIMismatch |
| MXP\_CL\_OTU\_BDI | RxBDI |
| MXP\_CL\_OTU\_IAE | RxIAE |
| MXP\_CL\_ODU\_AIS | RxSSFODU |
| MXP\_CL\_ODU\_OCI | RxOCI |
| MXP\_CL\_ODU\_LCK | RxLCK |
| MXP\_CL\_ODU\_TTIMM | RxTIM |
| MXP\_CL\_ODU\_SD | RxDEG |