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GENERAL DESCRIPTION

The XRT86SH328 is an integrated VT/TU Mapper with 28 port T1 or 21 port E1 Line Interface Units. The XRT86SH328 contains integrated DS1/E1/J1 Framers for performance monitoring.

The XRT86SH328 processes the Section, Line and Path overhead in the SONET/SDH data-stream. The processing of path overhead bytes within the STS-1s or TUG-3s include 64 bytes (of buffer) for storing the (Section Trace and Path Trace) messages. Path Overhead bytes can be accessed either by on-chip registers or a Serial Output Port.

Each of the T1 or E1 Channels use an internal De-Synchronizer circuit with an internal pointer leak algorithm. This removes the jitter due to mapping and pointer adjustments from the T1 or E1 signals that are de-mapped from the incoming SONET/SDH data-stream. These De-Synchronizer circuits do not need any external clock references for its operation.

The Transmit Blocks permit flexible insertion of TOH and POH bytes via both Hardware and Software control.

The Receive Blocks receive a SONET STS-1 signals or an SDH STM-1 signal and performs the necessary Transport and Path Overhead Processing.

A PRBS Pattern Generator and Receiver is implemented within each of the T1/E1 channels in order to implement and measure Bit-Error performance.

A general purpose Microprocessor Interface is included for control, configuration and monitoring.

FEATURES

- Provides mapping of up to 28 T1 streams as Asynchronous VT1.5 into an STS-1 SPE or TU-11 tributary unit into an STM-1/VC-3 or TUG-3 from STM-1/VC-4
- Supports 28 T1 streams M13 multiplexed into a serial DS3
- Supports 21 E1 streams M13 multiplexed into a serial DS3 (compliant with ITU-T G.747)
- 28 T1 Streams M13 Multiplexed into a DS3 and DS3 is asynchronously mapped into STS-1.
- 21 E1 Streams M13 Multiplexed into a DS3 (ITU-T G.747) and DS3 is asynchronously mapped into STS-1.

- Supports 21 E1 mapped as Asynchronous VT2 into an STS-1 SPE or TU-12 tributary units into STM-1/VC-3 or TUG-3 from a STM-1/VC-4.
- Supports TU cross-mapping function TU-12/VC-11/T1.
- Supports mixed mapping of VT-G/VT1.5 and VT-G/VT2.
- Supports mixed mapping of TUG-2/TU-11 and TUG-2/TU-12
- 28 VT1.5/TU-11 or 21 VT-2/TU-12 tributaries can be passed as transparent between SONET/SDH Telecom Bus on the line side and Clock and Data on the system side.
- Supports Unframed T1/E1 signals
- Supports DS1/E1 Performance Monitoring in both Egress and Ingress direction
- VC-11/VC-12 Tandem Connection Monitoring support
- Complies with the Category I Intrinsic Jitter Requirements for DS1 signals being de-mapped from SONET, per Telcordia GR-253-CORE
- Complies with the "Mapping Jitter Generation Specification" for DS1 and E1 signals being de-mapped from SDH, per ITU-T G.783
- Complies with the "Combined Jitter Generation Specification" for DS1 and E1 signals being de-mapped from SDH, per ITU-T G.783
- Line and Facility Loop-backs
- Each of the 28 T1/E1 Channels includes a PRBS Generator and Receiver.
- Each of the 28 VT-Mapper blocks are capable of generating BIP-2 and REI errors upon software command (for diagnostic purposes).
- The Transmit and Receive DS3 Framer blocks support both the M13(M23) and the C-bit Parity Framing formats.
- Integrated 28 T1/E1/J1 Short-Haul Line Interface Units
- IEEE 1149.1 Standard Boundary Scan
- Low Power: 1.8V Power Supply for Core Logic; 3.3V Power Supply for I/O
- General Purpose Microprocessor Interface

APPLICATIONS

- Channelized and Unchannelized DS3 applications
- T1/E1 Terminals
- SONET/SDH ADM

FIGURE 1. BLOCK DIAGRAM OF THE XRT86SH328

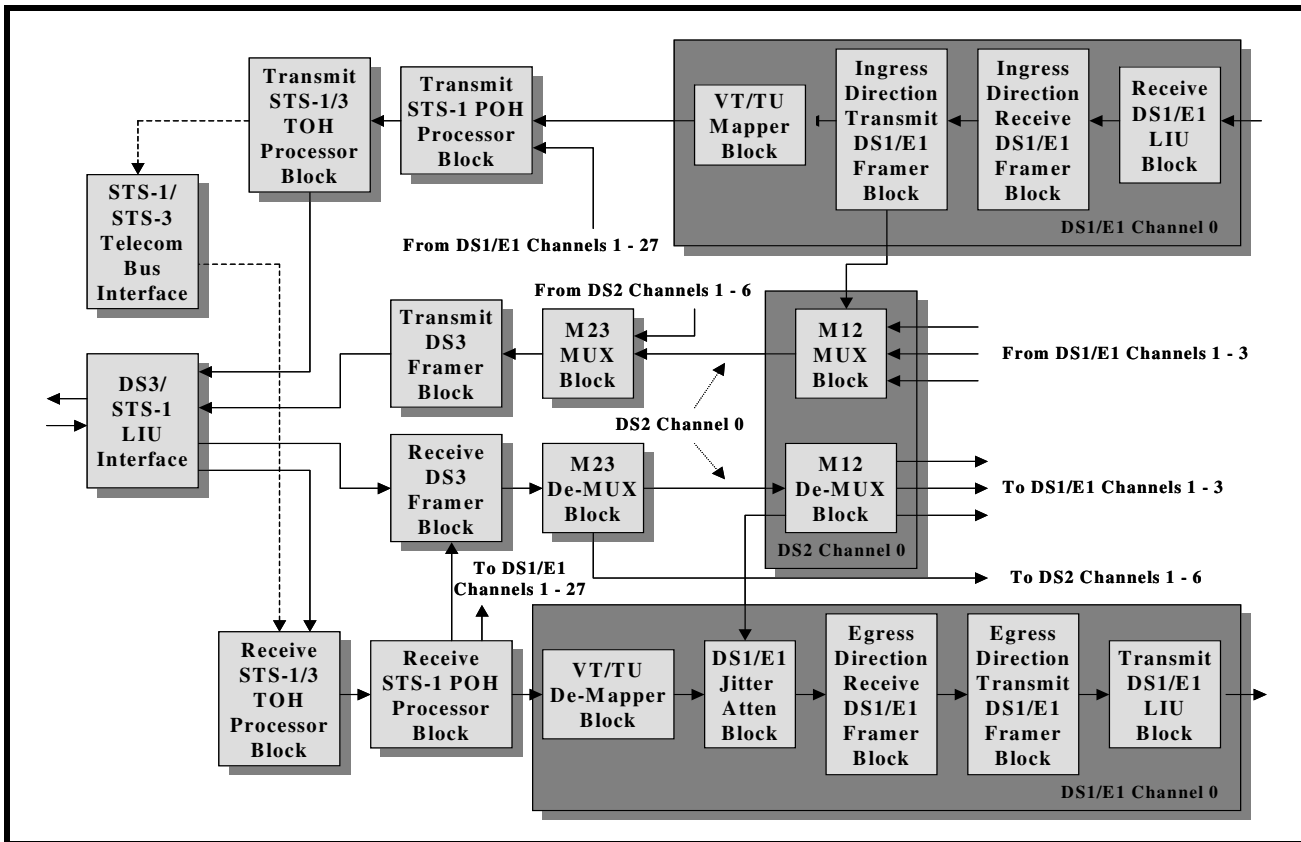


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PRODUCT NUMBER	PACKAGE TYPE	OPERATING TEMPERATURE RANGE
XRT86SH328IB	568 Ball BGA	-40°C to +85°C

FIGURE 2. PIN OUT OF THE XRT86SH328 (BOTTOM VIEW)

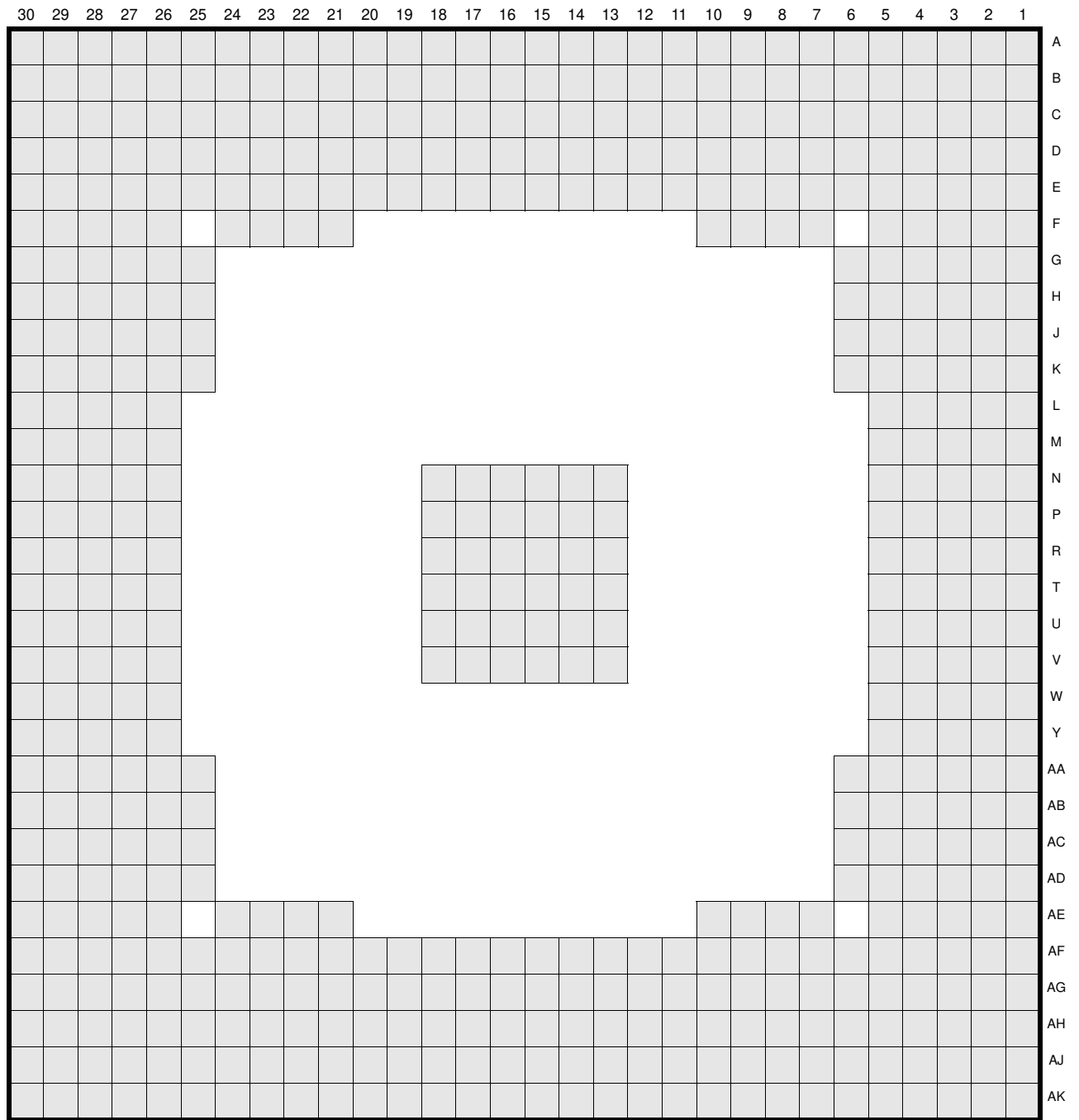


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1.0 REGISTER MAP & DESCRIPTION FOR THE XRT86SH328 SONET/SDH WITH DS3 MUX AND VT-MAPPER IC - SONET APPLICATIONS

1.1 REGISTER MAP OF THE XRT86SH328

TABLE 2: OPERATION CONTROL REGISTERS

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x0000	Operation Control Register - Byte 3	R/W	0x00
0x0001	Operation Control Register - Byte 2	R/W	0x00
0x0002	Reserved		
0x0003	Operation Control Register - Byte 0	R/W	0x00
0x0004	Device ID Register	R/O	0x50
0x0005	Revision ID Register	R/O	0x01
0x0006 - 0x000A	Reserved		
0x000B	Operation Interrupt Status Register - Byte 0	RUR	0x00
0x000C - 0x000E	Reserved		
0x000F	Operation Interrupt Enable Register - Byte 0	R/W	0x00
0x0010 - 0x0011	Reserved		
0x0012	Operation Block - Interrupt Status Register - Byte 1	R/O	0x00
0x0013	Operation Block - Interrupt Status Register - Byte 0	R/O	0x00
0x0014 - 0x0015	Reserved		
0x0016	Operation Block - Interrupt Enable Register - Byte 1	R/W	0x00
0x0017	Operation Block - Interrupt Enable Register - Byte 0	R/W	0x00
0x0018 - 0x001A	Reserved		
0x001B	Operation Block - Mode Control Register - Byte 0	R/W	0x00
0x001C - 0x001E	Reserved		
0x001F	Operation Block - Loop-back Control Register - Byte 0	R/W	0x00
0x0020 - 0x0033	Reserved		
0x0034	Operation Block - Telecom Bus Control Register - Byte 3	R/W	0x00
0x0035	Operation Block - Telecom Bus Control Register - Byte 2	R/W	0x00
0x0036	Operation Block - Telecom Bus Control Register - Byte 1	R/W	0x00
0x0037	Operation Block - Telecom Bus Control Register - Byte 0	R/W	0x00
0x0038 - 0x003B	Reserved		
0x003C	Operation Block - Interface Control Register	RUR & R/W	0x00
0x003D - 0x0046	Reserved		
0x0047	Operation Block - General Purpose Input/Output Register - Byte 0	R/W	0x00

TABLE 2: OPERATION CONTROL REGISTERS

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x0048 - 0x004A	Reserved		
0x004B	Operation Block - General Purpose Input/Output Direction Register - Byte 0	RW	0x00
0x004C - 0x004D	Reserved		
0x004E	Operation Block - Operation I/O Control Register 1	R/W	0x00
0x004F	Operation Block - Operation I/O Control Register 0	R/W	0x00
0x0050	Operation Block - Channel Interrupt Indication Register - VT Slot[27:24]	R/O	0x00
0x0051	Operation Block - Channel Interrupt Indicator Register - VT Slot[23:16]	R/O	0x00
0x0052	Operation Block - Channel Interrupt Indicator Register - VT Slot[15:8]	R/O	0x00
0x0053	Operation Block - Channel Interrupt Indicator Register - VT Slot[7:0]	R/O	0x00
0x0054	Operation Block - Channel Interrupt Indicator Register - M13 Slot[27:24]	R/O	0x00
0x0055	Operation Block - Channel Interrupt Indicator Register - M13 Slot[23:16]	R/O	0x00
0x0056	Operation Block - Channel Interrupt Indicator Register - M13 Slot[15:8]	R/O	0x00
0x0057	Operation Block - Channel Interrupt Indicator Register - M13 Slot[7:0]	R/O	0x00
0x0058	Operation Block - Channel Interrupt Indicator Register - DS1E1 LIU Slot[27:24]	R/O	0x00
0x0059	Operation Block - Channel Interrupt Indicator Register - DS1E1 LIU Slot[23:16]	R/O	0x00
0x005A	Operation Block - Channel Interrupt Indicator Register - DS1E1 LIU Slot[15:8]	R/O	0x00
0x005B	Operation Block - Channel Interrupt Indicator Register - DS1E1 LIU Slot[7:0]	R/O	0x00
0x005C	Operation Block - Channel Interrupt Indicator Register - VT-Mapper Slot[27:24]	R/O	0x00
0x005D	Operation Block - Channel Interrupt Indicator Register - VT-Mapper Slot[23:16]	R/O	0x00
0x005E	Operation Block - Channel Interrupt Indication Register - VT-Mapper Slot[15:8]	R/O	0x00
0x005F	Operation Block - Channel Interrupt Indication Register - VT-Mapper Slot[7:0]	R/O	0x00
0x0060 - 0x007F	Reserved		
0x0080	Operation Block - Channel De-Jitter FIFO Depth - VT-Mapper Slot[27:20]	R/W	0xFF
0x0081	Operation Block - Channel De-Jitter FIFO Depth - VT-Mapper Slot[19:12]	R/W	0xFF
0x0082	Operation Block - Channel De-Jitter FIFO Depth - VT-Mapper Slot[11:4]	R/W	0xFF
0x0083	Operation Block - Channel De-Jitter FIFO Depth - VT-Mapper Slot[3:0]	R/W	0x0F

TABLE 2: OPERATION CONTROL REGISTERS

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x0084	Operation Block - Channel De-Jitter FIFO Status - VT-Mapper Slot[27:20]	RUR	0x00
0x0085	Operation Block - Channel De-Jitter FIFO Status - VT-Mapper Slot[19:12]	RUR	0x00
0x0086	Operation Block - Channel De-Jitter FIFO Status - VT-Mapper Slot[11:4]	RUR	0x00
0x0087	Operation Block - Channel De-Jitter FIFO Status - VT-Mapper Slot[3:0]	RUR	0x00
0x0088 - 0x00FF	Reserved		

TABLE 3: RECEIVE STS-1/STS-3 TOH PROCESSOR BLOCK REGISTERS

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x0200 - 0x0201	Reserved		
0x0202	Receive STS-1/STS-3 Transport - Control Register - Byte 1	R/W	0x00
0x0203	Receive STS-1/STS-3 Transport - Control Register - Byte 0	R/W	0x00
0x0204 - 0x0205	Reserved	R/O	0x00
0x0206	Receive STS-1/STS-3 Transport - Status Register - Byte 1	R/O	0x00
0x0207	Receive STS-1/STS-3 Transport - Status Register - Byte 0	R/O	0x00
0x0208	Reserved		
0x0209	Receive STS-1/STS-3 Transport - Interrupt Status Register - Byte 2	RUR	0x00
0x020A	Receive STS-1/STS-3 Transport - Interrupt Status Register - Byte 1	RUR	0x00
0x020B	Receive STS-1/STS-3 Transport - Interrupt Status Register - Byte 0	RUR	0x00
0x020C	Reserved		
0x020D	Receive STS-1/STS-3 Transport - Interrupt Enable Register - Byte 2	R/W	0x00
0x020E	Receive STS-1/STS-3 Transport - Interrupt Enable Register - Byte 1	R/W	0x00
0x020F	Receive STS-1/STS-3 Transport - Interrupt Enable Register - Byte 0	R/W	0x00
0x0210	Receive STS-1/STS-3 Transport - Receive B1 Byte Error Count Register - Byte 3	RUR	0x00
0x0211	Receive STS-1/STS-3 Transport - Receive B1 Byte Error Count Register - Byte 2	RUR	0x00
0x0212	Receive STS-1/STS-3 Transport - Receive B1 Byte Error Count Register - Byte 1	RUR	0x00
0x0213	Receive STS-1/STS-3 Transport - Receive B1 Byte Error Count Register - Byte 0	RUR	0x00
0x0214	Receive STS-1/STS-3 Transport - Receive B2 Byte Error Count Register - Byte 3	RUR	0x00



TABLE 3: RECEIVE STS-1/STS-3 TOH PROCESSOR BLOCK REGISTERS

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x0215	Receive STS-1/STS-3 Transport - Receive B2 Byte Error Count Register - Byte 2	RUR	0x00
0x0216	Receive STS-1/STS-3 Transport - Receive B2 Byte Error Count Register - Byte 1	RUR	0x00
0x0217	Receive STS-1/STS-3 Transport - Receive B2 Byte Error Count Register - Byte 0	RUR	0x00
0x0218	Receive STS-1/STS-3 Transport - Receive REI-L Event Count Register - Byte 3	RUR	0x00
0x0219	Receive STS-1/STS-3 Transport - Receive REI-L Event Count Register - Byte 2	RUR	0x00
0x021A	Receive STS-1/STS-3 Transport - Receive REI-L Event Count Register - Byte 1	RUR	0x00
0x021B	Receive STS-1/STS-3 Transport - Receive REI-L Event Count Register - Byte 0	RUR	0x00
0x021C - 0x021E	Reserved		
0x021F	Receive STS-1/STS-3 Transport - Receive K1 Byte Value Register	R/O	0x00
0x0220 - 0x0222	Reserved		
0x0223	Receive STS-1/STS-3 Transport - Receive K2 Byte Value Register	R/O	0x00
0x0224 - 0x0226	Reserved		
0x0227	Receive STS-1/STS-3 Transport - Receive S1 Byte Value Register	R/O	0x00
0x0228 - 0x022A	Reserved		
0x022B	Receive STS-1/STS-3 Transport - Receive In-Sync Threshold Register	R/W	0x00
0x022C - 0x022D	Reserved		
0x022E	Receive STS-1/STS-3 Transport - Receive LOS Threshold Register - MSB	R/W	0x00
0x022F	Receive STS-1/STS-3 Transport - Receive LOS Threshold Register - LSB	R/W	0x00
0x0230	Reserved		
0x0231	Receive STS-1/STS-3 Transport - Receive SF Defect Declare Monitor Interval Register - Byte 2	R/W	0x00
0x0232	Receive STS-1/STS-3 Transport - Receive SF Defect Declare Monitor Interval Register - Byte 1	R/W	0x00
0x0233	Receive STS-1/STS-3 Transport - Receive SF Defect Declare Monitor Interval Register - Byte 0	R/W	0x00
0x0234 - 0x0235	Reserved		
0x0236	Receive STS-1/STS-3 Transport - Receive SF Defect Set Threshold Register - Byte 1	R/W	0x00
0x0237	Receive STS-1/STS-3 Transport - Receive SF Defect Set Threshold Register - Byte 0	R/W	0x00

TABLE 3: RECEIVE STS-1/STS-3 TOH PROCESSOR BLOCK REGISTERS

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x0238 - 0x0239	Reserved		
0x023A	Receive STS-1/STS-3 Transport - Receive SF Defect Clear Threshold Register - Byte 1	R/W	0x00
0x023B	Receive STS-1/STS-3 Transport - Receive SF Defect Clear Threshold Register - Byte 0	R/W	0x00
0x023C	Reserved		
0x023D	Receive STS-1/STS-3 Transport - Receive SD Defect Declare Monitor Interval - Byte 2	R/W	0x00
0x023E	Receive STS-1/STS-3 Transport - Receive SD Defect Declare Monitor Interval - Byte 1	R/W	0x00
0x023F	Receive STS-1/STS-3 Transport - Receive SD Defect Declare Monitor Interval - Byte 0	R/W	0x00
0x0240 - 0x0241	Reserved		
0x0242	Receive STS-1/STS-3 Transport - Receive SD Defect Set Threshold Register - Byte 1	R/W	0x00
0x0243	Receive STS-1/STS-3 Transport - Receive SD Defect Set Threshold Register - Byte 0	R/W	0x00
0x0244 - 0x0245	Reserved		
0x0246	Receive STS-1/STS-3 Transport - Receive SD Defect Clear Threshold Register - Byte 1	R/W	0x00
0x0247	Receive STS-1/STS-3 Transport - Receive SD Defect Clear Threshold Register - Byte 0	R/W	0x00
0x0248 - 0x024A	Reserved		
0x024B	Receive STS-1/STS-3 Transport - SEF Force Register	R/W	0x00
0x024C - 0x024E	Reserved		
0x024F	Receive STS-1/STS-3 Transport - Receive J0 Byte/Section Trace Message Control Register	R/W	0x00
0x0250 - 0x0251	Reserved		
0x0252	Receive STS-1/STS-3 Transport - Receive SD Defect Error Burst Tolerance Register - Byte 1	R/W	0x00
0x0253	Receive STS-1/STS-3 Transport - Receive SD Defect Error Burst Tolerance Register - Byte 0	R/W	0x00
0x0254 - 0x0255	Reserved		
0x0256	Receive STS-1/STS-3 Transport - Receive SF Defect Error Burst Tolerance Register - Byte 1	R/W	0x00
0x0257	Receive STS-1/STS-3 Transport - Receive SF Defect Error Burst Tolerance Register - Byte 0	R/W	0x00
0x0258	Reserved		

TABLE 3: RECEIVE STS-1/STS-3 TOH PROCESSOR BLOCK REGISTERS

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x0259	Receive STS-1/STS-3 Transport - Receive SD Defect Clear Monitor Interval - Byte 2	R/W	0x00
0x025A	Receive STS-1/STS-3 Transport - Receive SD Defect Clear Monitor Interval - Byte 1	R/W	0x00
0x025B	Receive STS-1/STS-3 Transport - Receive SD Defect Clear Monitor Interval - Byte 0	R/W	0x00
0x025C	Reserved		
0x025D	Receive STS-1/STS-3 Transport - Receive SF Defect Clear Monitor Interval - Byte 2	R/W	0x00
0x025E	Receive STS-1/STS-3 Transport - Receive SF Defect Clear Monitor Interval - Byte 1	R/W	0x00
0x025F	Receive STS-1/STS-3 Transport - Receive SF Defect Clear Monitor Interval - Byte 0	R/W	0x00
0x0260 - 0x0262	Reserved		
0x0263	Receive STS-1/STS-3 Transport - Auto AIS Control Register	R/W	0x00
0x0264 - 0x0266	Reserved		
0x0267	Receive STS-1/STS-3 Transport - Serial Port Control Register	R/W	0x00
0x0268 - 0x026A	Reserved		
0x026B	Receive STS-1/STS-3 Transport - Auto AIS (in Downstream T1/E1) Register	R/W	0x00
0x026C - 0x026D	Reserved		
0x026E	Receive STS-1/STS-3 Transport - A1, A2 Byte Error Count Register - Byte 1	RUR	0x00
0x026F	Receive STS-1/STS-3 Transport - A1, A2 Byte Error Count Register - Byte 0	RUR	0x00
0x0270 - 0x0279	Reserved		
0x027A	Receive STS-1/STS-3 Transport - Receive TOH Capture Buffer - Indirect Address Register - Byte 1	R/W	0x00
0x027B	Receive STS-1/STS-3 Transport - Receive TOH Capture Buffer - Indirect Address Register - Byte 0	R/W	0x00
0x027C-0x027E	Reserved	R/W	0x00
0x027F	Receive STS-1/STS-3 Transport - Receive TOH Capture Buffer - Indirect Data Register - Byte 0	R/O	0x00
0x0280	Reserved		

TABLE 4: RECEIVE STS-1/STS-3 POH PROCESSOR BLOCK REGISTERS

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x0281 - 0x0282	Reserved		
0x0283	Receive STS-1/STS-3 Path - Receive Control Register - Byte 0	R/W	0x00
0x0284 - 0x0285	Reserved		
0x0286	Receive STS-1/STS-3 Path - Receive Status Register - Byte 1	R/O	0x00
0x0287	Receive STS-1/STS-3 Path - Receive Status Register - Byte 0	R/O	0x00
0x0288	Reserved		
0x0289	Receive STS-1/STS-3 Path - Receive Interrupt Status Register - Byte 2	RUR	0x00
0x028A	Receive STS-1/STS-3 Path - Receive Interrupt Status Register - Byte 1	RUR	0x00
0x028B	Receive STS-1/STS-3 Path - Receive Interrupt Status Register - Byte 0	RUR	0x00
0x028C	Reserved		
0x028D	Receive STS-1/STS-3 Path - Receive Interrupt Enable Register - Byte 2	R/W	0x00
0x028E	Receive STS-1/STS-3 Path - Receive Interrupt Enable Register - Byte 1	R/W	0x00
0x028F	Receive STS-1/STS-3 Path - Receive Interrupt Enable Register - Byte 0	R/W	0x00
0x0290 - 0x0292	Reserved		
0x0293	Receive STS-1/STS-3 Path - Receive RDI-P Register	R/O & R/W	0x00
0x0294 - 0x0295	Reserved		
0x0296	Receive STS-1/STS-3 Path - Receive C2 (Path Label) Byte Accepted Register	R/O	0xFF
0x0297	Receive STS-1/STS-3 Path - Receive C2 (Path Label) Byte Expected Register	R/W	0xFF
0x0298	Receive STS-1/STS-3 Path - Receive B3 Byte Error Count Register - Byte 3	RUR	0x00
0x0299	Receive STS-1/STS-3 Path - Receive B3 Byte Error Count Register - Byte 2	RUR	0x00
0x029A	Receive STS-1/STS-3 Path - Receive B3 Byte Error Count Register - Byte 1	RUR	0x00
0x029B	Receive STS-1/STS-3 Path - Receive B3 Byte Error Count Register - Byte 0	RUR	0x00
0x029C	Receive STS-1/STS-3 Path - Receive REI-P Event Count Register - Byte 3	RUR	0x00
0x029D	Receive STS-1/STS-3 Path - Receive REI-P Event Count Register - Byte 2	RUR	0x00
0x029E	Receive STS-1/STS-3 Path - Receive REI-P Event Count Register - Byte 1	RUR	0x00
0x029F	Receive STS-1/STS-3 Path - Receive REI-P Event Count Register - Byte 0	RUR	0x00
0x02A0 - 0x02A2	Reserved		



TABLE 4: RECEIVE STS-1/STS-3 POH PROCESSOR BLOCK REGISTERS

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x02A3	Receive STS-1/STS-3 Path - Receive J1 Byte/Path Trace Message Control Register	R/W	0x00
0x02A4 - 0x02A5	Reserved		
0x02A6	Receive STS-1/STS-3 - Receive Pointer Value Register - Byte 1	R/O	0x00
0x02A7	Receive STS-1/STS-3 - Receive Pointer Value Register - Byte 0	R/O	0x00
0x02A8 - 0x02AA	Reserved		
0x02AB	Receive STS-1/STS-3 - Receive LOP-C Status Register	R/O	0x00
0x02AC - 0x02B2	Reserved		
0x02B3	Receive STS-1/STS-3 - Receive AIS-C Status Register	R/O	0x00
0x02B4 - 0x02B8	Reserved		
0x02B9	Receive STS-1/STS-3 - Receive Auto AIS - C2 Byte Value Register	R/W	0x00
0x02BA	Receive STS-1/STS-3 - Receive Auto AIS - C2 Byte Control Register	R/W	0x00
0x02BB	Receive STS-1/STS-3 - Receive Auto AIS Control Register	R/W	0x00
0x02BC - 0x02BE	Reserved		
0x02BF	Receive STS-1/STS-3 - POH Serial Port Control Register	R/W	0x00
0x02C0 - 0x02C2	Reserved		
0x02C3	Receive STS-1/STS-3 - Auto AIS (in Downstream T1/E1) Register	R/W	0x00
0x02C4	Receive STS-1/STS-3 - Receive Negative Pointer Adjustment Count Register - Byte 1	RUR	0x00
0x02C5	Receive STS-1/STS-3 - Receive Negative Pointer Adjustment Count Register - Byte 0	RUR	0x00
0x02C6	Receive STS-1/STS-3 - Receive Positive Pointer Adjustment Count Register - Byte 1	RUR	0x00
0x02C7	Receive STS-1/STS-3 - Receive Positive Pointer Adjustment Count Register - Byte 0	RUR	0x00
0x02C8 - 0x02D2	Reserved		
0x02D3	Receive STS-1/STS-3 - Receive J1 Byte Value Register	R/O	0x00
0x02D4 - 0x02D6	Reserved		
0x02D7	Receive STS-1/STS-3 - Receive B3 Byte Value Register	R/O	0x00
0x02D8 - 0x02DA	Reserved		
0x02DB	Receive STS-1/STS-3 - Receive C2 Byte Value Register	R/O	0x00
0x02DC - 0x02DE	Reserved		
0x02DF	Receive STS-1/STS-3 - Receive G1 Byte Value Register	R/O	0x00
0x02E0 - 0x02E2	Reserved		

TABLE 4: RECEIVE STS-1/STS-3 POH PROCESSOR BLOCK REGISTERS

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x02E3	Receive STS-1/STS-3 - Receive F2 Byte Value Register	R/O	0x00
0x02E4 - 0x02E6	Reserved		
0x02E7	Receive STS-1/STS-3 - Receive H4 Byte Value Register	R/O	0x00
0x02E8 - 0x02EA	Reserved		
0x02EB	Receive STS-1/STS-3 - Receive Z3 Byte Value Register	R/O	0x00
0x02EC - 0x02EE	Reserved		
0x02EF	Receive STS-1/STS-3 - Receive Z4 Byte Value Register	R/O	0x00
0x02F0 - 0x02F2	Reserved		
0x02F3	Receive STS-1/STS-3 - Receive Z5 Byte Value Register	R/O	0x00
0x02F4 - 0x02FF	Reserved		

TABLE 5: RECEIVE STS-1/STS-3 TRANSPORT - RECEIVE SECTION TRACE MESSAGE BUFFER

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x0300 - 0x033F	Receive STS-1/STS-3 Transport - Receive Section Trace Message Buffer	R/O	0x00
0x0340 - 0x03FF	Reserved	R/O	0x00

TABLE 6: RECEIVE STS-1/STS-3 PATH - RECEIVE PATH TRACE MESSAGE BUFFER

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x0400 - 0x043F	Receive STS-1/STS-3 Path - Receive Path Trace Message Buffer	R/O	0x00
0x0440 - 0x0580	Reserved	R/O	0x00

TABLE 7: RECEIVE TU-3 POH PROCESSOR BLOCK REGISTERS (SDH/TUG-3 APPLICATIONS ONLY)

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x0581	Receive TU-3 Path - Receive Control Register - Byte 2	R/W	0x00
0x0582	Reserved		
0x0583	Receive TU-3 Path - Receive Control Register - Byte 0	R/W	0x00
0x0584 - 0x0585	Reserved		
0x0586	Receive TU-3 Path - Receive Status Register - Byte 1	R/O	0x00
0x0587	Receive TU-3 Path - Receive Status Register - Byte 0	R/O	0x00
0x0588	Reserved		
0x0589	Receive TU-3 Path - Receive Interrupt Status Register - Byte 2	RUR	0x00



TABLE 7: RECEIVE TU-3 POH PROCESSOR BLOCK REGISTERS (SDH/TUG-3 APPLICATIONS ONLY)

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x058A	Receive TU-3 Path - Receive Interrupt Status Register - Byte 1	RUR	0x00
0x058B	Receive TU-3 Path - Receive Interrupt Status Register - Byte 0	RUR	0x00
0x058C	Reserved		
0x058D	Receive TU-3 Path - Receive Interrupt Enable Register - Byte 2	R/W	0x00
0x058E	Receive TU-3 Path - Receive Interrupt Enable Register - Byte 1	R/W	0x00
0x058F	Receive TU-3 Path - Receive Interrupt Enable Register - Byte 0	R/W	0x00
0x0590 - 0x0592	Reserved		
0x0593	Receive TU-3 Path - Receive RDI-P Register	R/O & R/W	0x00
0x0594 - 0x0595	Reserved		
0x0596	Receive TU-3 Path - Receive C2 (Path Label) Byte Accepted Register	R/O	0xFF
0x0597	Receive TU-3 Path - Receive C2 (Path Label) Byte Expected Register	R/W	0xFF
0x0598	Receive TU-3 Path - Receive B3 Byte Error Count Register - Byte 3	RUR	0x00
0x0599	Receive TU-3 Path - Receive B3 Byte Error Count Register - Byte 2	RUR	0x00
0x059A	Receive TU-3 Path - Receive B3 Byte Error Count Register - Byte 1	RUR	0x00
0x059B	Receive TU-3 Path - Receive B3 Byte Error Count Register - Byte 0	RUR	0x00
0x059C	Receive TU-3 Path - Receive REI-P Event Count Register - Byte 3	RUR	0x00
0x059D	Receive TU-3 Path - Receive REI-P Event Count Register - Byte 2	RUR	0x00
0x059E	Receive TU-3 Path - Receive REI-P Event Count Register - Byte 1	RUR	0x00
0x059F	Receive TU-3 Path - Receive REI-P Event Count Register - Byte 0	RUR	0x00
0x05A0 - 0x05A2	Reserved		
0x05A3	Receive TU-3 Path - Receive J1 Byte/Path Trace Message Control Register	R/W	0x00
0x05A4 - 0x05A5	Reserved		
0x05A6	Receive TU-3 Path - Receive Pointer Value Register - Byte 1	R/O	0x00
0x05A7	Receive TU-3 Path - Receive Pointer Value Register - Byte 0		
0x05A8 - 0x05AA	Reserved		
0x05AB	Receive TU-3 Path - Receive LOP-C Status Register	R/O	0x00
0x05AC - 0x05B2	Reserved		
0x05B3	Receive TU-3 Path - Receive AIS-C Status Register	R/O	0x00
0x05B4 - 0x05B8	Reserved		
0x05B9	Receive TU-3 Path - Receive Auto AIS - C2 Byte Value Register	R/W	0x00
0x05BA	Receive TU-3 Path - Receive Auto AIS - C2 Byte Control Register	R/W	0x00
0x05BB	Receive TU-3 Path - Receive Auto AIS Control Register	R/W	0x00

TABLE 7: RECEIVE TU-3 POH PROCESSOR BLOCK REGISTERS (SDH/TUG-3 APPLICATIONS ONLY)

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x05BC - 0x05BE	Reserved		
0x05BF	Receive TU-3 Path - Receive Serial Port Control Register	R/W	0x00
0x05C0 - 0x05C2	Reserved		
0x05C3	Receive TU-3 Path - Auto AIS (in Downstream T1/E1) Register	R/W	0x00
0x05C4	Receive TU-3 Path - Receive Negative Pointer Adjustment Count Register - Byte 1	RUR	0x00
0x05C5	Receive TU-3 Path - Receive Negative Pointer Adjustment Count Register - Byte 0	RUR	0x00
0x05C6	Receive TU-3 Path - Receive Positive Pointer Adjustment Count Register - Byte 1	RUR	0x00
0x05C7	Receive TU-3 Path - Receive Positive Pointer Adjustment Count Register - Byte 0	RUR	0x00
0x05C8 - 0x05D2	Reserved		
0x05D3	Receive TU-3 Path - Receive J1 Byte Value Register	R/O	0x00
0x05D4 - 0x05D6	Reserved		
0x05D7	Receive TU-3 Path - Receive B3 Byte Value Register	R/O	0x00
0x05D8 - 0x05DA	Reserved		
0x05DB	Receive TU-3 Path - Receive C2 Byte Value Register	R/O	0x00
0x05DC - 0x05DE	Reserved		
0x05DF	Receive TU-3 Path - Receive G1 Byte Value Register	R/O	0x00
0x05E0 - 0x05E2	Reserved		
0x05E3	Receive TU-3 Path - Receive F2 Byte Value Register	R/O	0x00
0x05E4 - 0x05E6	Reserved		
0x05E7	Receive TU-3 Path - Receive H4 Byte Value Register	R/O	0x00
0x05E8 - 0x05EA	Reserved		
0x05EB	Receive TU-3 Path - Receive Z3 Byte Value Register	R/O	0x00
0x05EC - 0x05EE	Reserved		
0x05EF	Receive TU-3 Path - Receive Z4 Byte Value Register	R/O	0x00
0x05F0 - 0x05F2	Reserved		
0x05F3	Receive TU-3 Path - Receive Z5 Byte Value Register	R/O	0x00
0x05F4 - 0x05FF	Reserved		

TABLE 8: RECEIVE TU-3 POH PROCESSOR BLOCK - RECEIVE PATH TRACE MESSAGE BUFFER (SDH/TUG-3 APPLICATIONS ONLY)

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x0600 - 0x063F	Receive TU-3 POH Processor Block - Receive Path Trace Message Buffer	R/O	0x00
0x0640 - 0x06FF	Reserved		

TABLE 9: TRANSMIT STS-1/STS-3 TOH PROCESSOR BLOCK REGISTERS

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x0700	Transmit STS-1/STS-3 Transport - Transmit Control Register - Byte 3	R/W	0x00
0x0701	Transmit STS-1/STS-3 Transport - Transmit Control Register - Byte 2	R/W	0x00
0x0702	Transmit STS-1/STS-3 Transport - Transmit Control Register - Byte 1	R/W	0x00
0x0703	Transmit STS-1/STS-3 Transport - Transmit Control Register - Byte 0	R/W	0x00
0x0704 - 0x0716	Reserved		
0x0717	Transmit STS-1/STS-3 Transport - Transmit A1 Byte Error Mask Register - Byte 0	R/W	0x00
0x0718 - 0x071D	Reserved		
0x071E	Transmit STS-1/STS-3 Transport - Transmit A2 Byte Error Mask Register - Byte 1	R/W	0x00
0x071F	Transmit STS-1/STS-3 Transport - Transmit A2 Byte Error Mask Register - Byte 0	R/W	0x00
0x0720 - 0x0722	Reserved		
0x0723	Transmit STS-1/STS-3 Transport - Transmit B1 Byte Error Mask Register	R/W	0x00
0x0724 - 0x0725			
0x0726	Transmit STS-1/STS-3 Transport - Transmit B2 Byte Error Mask Register - Byte 1	R/W	0x00
0x0727	Transmit STS-1/STS-3 Transport - Transmit B2 Byte Error Mask Register - Byte 0	R/W	0x00
0x0728 - 0x072A	Reserved		
0x072B	Transmit STS-1/STS-3 Transport - Transmit B2 Byte Bit Error Mask Register	R/W	0x00
0x072C - 0x072D	Reserved		
0x072E	Transmit STS-1/STS-3 Transport - Transmit K1 Byte Value Register	R/W	0x00
0x072F	Transmit STS-1/STS-3 Transport - Transmit K2 Byte Value Register	R/W	0x00
0x0730 - 0x0732	Reserved		
0x0733	Transmit STS-1/STS-3 Transport - Transmit RDI-L Control Register	R/W	0x00
0x0734-0x0736	Reserved		

TABLE 9: TRANSMIT STS-1/STS-3 TOH PROCESSOR BLOCK REGISTERS

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x0737	Transmit STS-1/STS-3 Transport - Transmit M0/M1 Byte Value Register	R/W	0x00
0x0738	Transmit STS-1/STS-3 Transport - Transmit S1 Byte Control Register	R/W	0x00
0x0739	Reserved		
0x073A	Transmit STS-1/STS-3 Transport - Transmit S1 Pointer Register	R/W	0x00
0x073B	Transmit STS-1/STS-3 Transport - Transmit S1 Byte Value Register	R/W	0x00
0x073C	Transmit STS-1/STS-3 Transport - Transmit F1 Byte Control Register	R/W	0x00
0x073D	Reserved		
0x073E	Transmit STS-1/STS-3 Transport - Transmit F1 Byte Pointer Register	R/W	0x00
0x073F	Transmit STS-1/STS-3 Transport - Transmit F1 Byte Value Register	R/W	0x00
0x0740	Transmit STS-1/STS-3 Transport - Transmit E1 Byte Control Register	R/W	0x00
0x0741	Reserved		
0x0742	Transmit STS-1/STS-3 Transport - Transmit E1 Pointer Register	R/W	0x00
0x0743	Transmit STS-1/STS-3 Transport - Transmit E1 Byte Value Register	R/W	0x00
0x0744	Transmit STS-1/STS-3 Transport - Transmit E2 Byte Control Register	R/W	0x00
0x0745	Reserved		
0x0746	Transmit STS-1/STS-3 Transport - Transmit E2 Byte Pointer Register	R/W	0x00
0x0747	Transmit STS-1/STS-3 Transport - Transmit E2 Byte Value Register	R/W	0x00
0x0748 - 0x074A	Reserved		
0x074B	Transmit STS-1/STS-3 Transport - Transmit J0 Byte Value Register	R/W	0x00
0x074C - 0x074E	Reserved		
0x074F	Transmit STS-1/STS-3 Transport - Transmit J0 Byte/Section Trace Message Control Register	R/W	0x00
0x0750 - 0x0780	Reserved		

TABLE 10: TRANSMIT STS-1/STS-3 POH PROCESSOR BLOCK REGISTERS

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x0781	Reserved		
0x0782	Transmit STS-1/STS-3 Path - Transmit Path Control Register - Byte 1	R/W	0x00
0x0783	Transmit STS-1/STS-3 Path - Transmit Path Control Register - Byte 0	R/W	0x00
0x0784 - 0x0792	Reserved		
0x0793	Transmit STS-1/STS-3 Path - Transmit J1 Byte Value Register	R/W	0x00
0x0794 - 0x0796	Reserved		



TABLE 10: TRANSMIT STS-1/STS-3 POH PROCESSOR BLOCK REGISTERS

ADDRESS LOCATION	REGISTER NAME	TYPE	DEFAULT VALUE
0x0796	Transmit STS-1/STS-3 Path - Transmit B3 Byte Pass Thru Register	R/W	0x00
0x0797	Transmit STS-1/STS-3 Path - Transmit B3 Byte Mask Register	R/W	0x00
0x0798 - 0x079A	Reserved		
0x079B	Transmit STS-1/STS-3 Path - Transmit C2 Byte Value Register	R/W	0x00
0x079C - 0x079E	Reserved		
0x079F	Transmit STS-1/STS-3 Path - Transmit G1 Byte Value Register	R/W	0x00
0x07A0 - 0x07A2	Reserved		
0x07A3	Transmit STS-1/STS-3 Path - Transmit F2 Byte Value Register	R/W	0x00
0x07A4 - 0x07A6	Reserved		
0x07A7	Transmit STS-1/STS-3 Path - Transmit H4 Byte Value Register	R/W	0x00
0x07A8 - 0x07AA	Reserved		
0x07AB	Transmit STS-1/STS-3 Path - Transmit Z3 Byte Value Register	R/W	0x00
0x07AC - 0x07AE	Reserved		
0x07AF	Transmit STS-1/STS-3 Path - Transmit Z4 Byte Value Register	R/W	0x00
0x07B0 - 0x07B2	Reserved		
0x07B3	Transmit STS-1/STS-3 Path - Transmit Z5 Byte Value Register	R/W	0x00
0x07B4 - 0x07B6	Reserved		
0x07B7	Transmit STS-1/STS-3 Path - Transmit Control Register - Byte 0	R/W	0x00
0x07B8 - 0x07BA	Reserved		
0x07BB	Transmit STS-1/STS-3 Path - Transmit J1 Byte/Path Trace Message Control Register	R/W	0x00
0x07BC - 0x07BE	Reserved		
0x07BF	Transmit STS-1/STS-3 Path - Transmit Arbitrary Pointer (H1 Byte) Value Register	R/W	0x00
0x07C0 - 0x07C2	Reserved		
0x07C3	Transmit STS-1/STS-3 Path - Transmit Arbitrary Pointer (H2 Byte) Value Register	R/W	0x00
0x07C4 - 0x07C5	Reserved		
0x07C6	Transmit STS-1/STS-3 Path - Current Pointer Value Register - High-Byte	R/O	0x02
0x07C7	Transmit STS-1/STS-3 Path - Current Pointer Value Register - Low-Byte	R/O	0x0A
0x07C8	Reserved		
0x07C9	Transmit STS-1/STS-3 Path - Transmit RDI-P Control Register - Byte 2	R/W	0x44
0x07CA	Transmit STS-1/STS-3 Path - Transmit RDI-P Control Register - Byte 1	R/W	0xCC