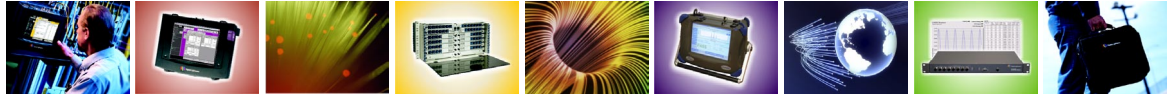




# For Asynchronous Transfer Mode Testing...



## ATM Module for NIC Platform

### Technical Specifications

#### SPECIFICATIONS

|                              |   |                                  |  |
|------------------------------|---|----------------------------------|--|
| Physical Interfaces          | SONET: STS-1, OC-1, OC-3, OC-12, OC-48, OC-192<br>SDH: STM-0/0e, STM-1/1e, STM-4, STM-16, STM-64<br>PDH: DS1, DS3, E1, E3   | Protocol Generation              | loss, cell misinsertion, CDV, cell reordering, test traffic insertion, VPI/VCI remapping, CLP tagging, CI setting, padding errors  |
| Physical Layer               | SONET: VT1.5, VT2, VT6, Full SPE, STS-3c, STS-12c   | Error Measurement                | AAL0 cell generation, AAL1/AAL5 protocol gen. HEC correctable and uncorrectable error counts and rates, AAL5 CRC errors, AAL5 length errors; PRBS bit error measurement, loss of PRBS sync; AAL1 SN/SNP error, lost cells, misinserted cell counts and rates; PLCP framing errors, PLCP BIP, PLCP FEBE counts and rates, PLCP B1 CNT, PLCP Framing Error Cnt, cell overflow, BERT analysis |
| PLCP Structure               | SDH: C-11, C-12, C-2, C-3, C-4, C-4-4c<br>PDH (Direct/PLCP): DS1, DS3, E1, E3 (G.832, G.751)  | Error Injection                  | HEC-correctable and uncorrectable errors, HEC error rate from continuous to 10-9, HEC error burst from 1 to 10 on consecutive cells; PLCP B1, PLCP FEBE, PLCP POI, PLCP Frame (A1A2), PLCP (POI)   |
| Adaptation Layers            | AAL0, AAL1, AAL5  | Error Measurement                | HEC correctable and uncorrectable error counts and rates, AAL5 CRC errors, AAL5 length errors; PRBS bit error measurement, loss of PRBS sync; AAL1 SN/SNP error, lost cells, misinserted cell counts and rates; PLCP framing errors, PLCP BIP, PLCP FEBE counts and rates  |
| Header and Interface Support | Control of all cell header bits; UNI (3.0, 3.1, 4.0) and NNI support  | Alarm Detection                  | Cell synchronization loss, F4 and F5 AIS OAM flow (end-to-end/segment), F4 and F5 RDI OAM flow (end-to-end/segment); PLCP yellow alarm (RAI)   |
| Channel Capacity             | Transmit: 240 channels (independent AAL, service class, and bandwidth on all VCCs)<br>Receive: 256 channels (cell count, bandwidth, AAL5 PDU counts and errors on all channels)   | Cell Payload Patterns            | PRBS 215 -1, all 1's, 10101010, user-defined pattern HEC-correctable and uncorrectable errors, HEC error rate from continuous to 10-9, HEC error burst from 1 to 10 on consecutive cells; PRBS bit error rates from 10-2 to 10-9, PLCP framing errors, BIP, FEBE   |
| Test Traffic Generation      | VCC Channel Count: Transmit foreground and background test channels<br>Traffic Shaping: Foreground traffic shaping: Constant Bit Rate (CBR), real time/non-real time Variable Bit Rate (rt VBR, nrt VBR), Unspecified Bit Rate (UBR), Available Bit Rate: ABR (for STS-12c or Ac-4-4c only), foreground transmit resolution; background traffic shaping<br>Cell Generation: Foreground VCC payload: 215 - 1 (cross cell PRBS) + INV, user-defined 32-bit pattern, full cell, 0.191 test cell, special OAM generation/test feature, and burst cell transmission; background VCC payload  | Error Injection                  | Cell synchronization loss, F4 and F5 AIS OAM flow (end-to-end/segment), F4 and F5 RDI flow (end-to-end/segment), PLCP yellow alarm   |
| Test Traffic Analysis        | VCC Channel Count: Receive test channels: Bandwidth analysis, cell count/rate, CLP ratio, CLP indication, BERT analysis, 0.191 Rev0/Rev1 analysis, AAL1 analysis, AAL5 analysis<br>Cell Analysis / QoS: Cell bandwidth analysis (count/rate) - 256 channels; correctable HEC errors; uncorrectable HEC errors; BERT analysis (count/rate); 0.191 analysis I.356 (CER, CMR, CLR, Cell Transfer Delay-CTD, SECB, MTBO, 2-point Cell Delay Variation-CDV); 1-point CDV; Cell misinsertion ratio for AAL1; cell inter-arrival analysis; real-time analysis channels (bandwidth, BERT, 0.191, AAL1, AAL5) and CLP monitoring<br>CER, CLR, CMR, SECBR | Alarm Generation                 | Calling SVCs, called SVCs, load test-call setup, load test-cyclic calls  |
| Performance Analysis         | AAL0: Cell count and bandwidth utilization, bit error count, pattern sync errors<br>AAL1: AAL1 SAR PDU header SNP errors, lost cells, misinserted cells for AAL1 VCCs; cell count and bandwidth utilization, bit error count, pattern sync errors; AAL5: CPCS analysis, VCC simultaneous analysis, CRC, PDU length errors<br>Network Impairment: Cell error generation, cell  | SVC Support                      | Channel set up time, channel tear down, SSCOP link status indication, Tx/Rx attempted calls, Tx/Rx connected calls, Tx/Rx rejected calls, Tx/Rx cleared calls, call reference value  |
| Protocol Analysis            |   | SVC Signalling Analysis          | Call statistics, UNI signalling, ATM layer, AAL-5, signaling filters, UNI signaling errors, SSCOP errors, port, errors/alarms  |
|                              |   | SVC Monitoring                   | I.610 OAM support: F4 AIS, F5 AIS, F4 RDI, F5 RDI, F4 loopback, F5 loopback, PM OAM support (generate PM OAM with test traffic, receive and analyze PM OAM, forward monitoring PM OAM, backward reporting PM OAM)  |
|                              |   | OAM Support (Generate & Analyze) | Capture buffer size, capture filter-based on VPI/VCI, sending of captured data after optional modifications by user  |
|                              |   | Cell Capture Support             | No. of Test Channels   |
|                              |   |                                  | 240 Tx, 256 Rx   |

#### ORDERING INFORMATION

- The ATM Module is included in certain configurations of the NGMR (Nxx) and OMR (Hxx) Modules. The ATM module can also be added to existing NIC Platform products.

For more information or a sales quote, contact any Digital Lightwave location or email [dlisales@lightwave.com](mailto:dlisales@lightwave.com)



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