USER MANUAL

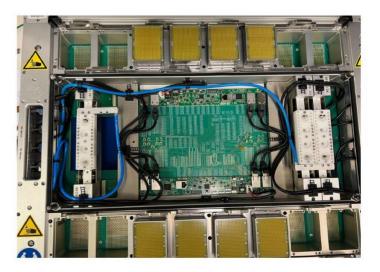


AT93000 Diagnostics User Manual

Instrument Troubleshooting Guide

AT93000 Diagnostics Guide-rev1.0 September 2022





Notices

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General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, use this product only as specified.

Only qualified personnel should perform service procedures.

While using this product, you may need to access other parts of the system. Read the General Safety Summary in other system manuals for warnings and cautions related to operating the system.

To Avoid Fire or Personal Injury

Use Proper Power Cord. Only use the power cord specified for this product and certified for the country of use.

Observe All Terminal Ratings. To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the product manual for further ratings information before making connections to the product.

Do not apply a potential to any terminal, including the common terminal that exceeds the maximum rating of that terminal.

Do Not Operate Without Covers.

Do not operate this product with covers or panels removed.

Avoid Exposed Circuitry. Do not touch exposed connections and components when power is present.

Do Not Operate with Suspected Failures.

If you suspect there is damage to this product, have it inspected by qualified service personnel.

Do Not Operate in Wet/Damp Conditions. Do Not Operate in an Explosive Atmosphere. Keep Product Surfaces Clean and Dry



Caution statements identify conditions or practices that could result in damage to this product or



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Purpose of this User Manual

The purpose of this User Manual is to help isolate Multilane-related failure mechanisms inside the AT93000 twinning frame shown in Figure 1.



Figure 1: AT93000 internal view

System Nomenclature

The cassette and backplane numbering are shown in Figure 2. The V93000 digital pogo block locations are also noted in this figure.

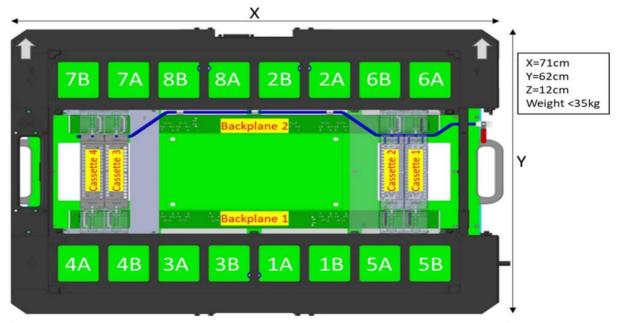


Figure 2: AT93000 cassette and backplane numbering



Items used for diagnostics

- 1) Voltmeter to check 12V on the backplane (optional).
- 2) External diagnostic brackets with F-F connectors if needed.
- 3) Diagnostic GUI available on MultiLane's public website. The file is here.

Quick checks before running hardware diagnostics

Ping Check

Start by trying to ping an instrument using its IP address to make sure that the instrument is turned ON and a proper Ethernet connection is available.

Docking Checks

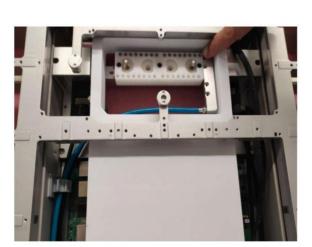
- See Advantest manuals for proper docking procedures.
- Is AT93000 Twinning Frame properly docking to V93000?
- Is DUT Loadboard properly docking to AT93000? This can be done manually or using the Advantest docking remote control.

Twinning Frame Cables Routing Checks

Checking the cable routing do not get pinched by the bridge beam (every service engineer should have a 3D printed bridge beam to check this). A pinched cable can be the field problem, so these kinds of things should be checked before touching the instruments.

Is the +12V power cable in good condition?

- Are the Ethernets cables in good condition?
- Both air cables are in good condition?



3D Printed Bridge Beam Top Side View





SMPM connector checks

- Are all SMPM male connectors on the loadboard stiffener straight? Make sure none are bent. Figure 3.
- Are all SMPM female connectors on the Multilane cassettes free of dirt and in good condition? Figure 4.



Figure 3: SMPM male connectors on loadboard blindmate connectors

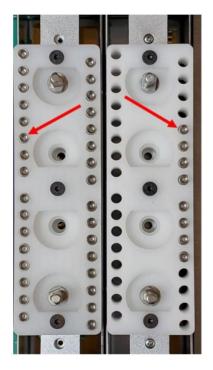


Figure 4: SMPM female connectors on Multilane cassettes



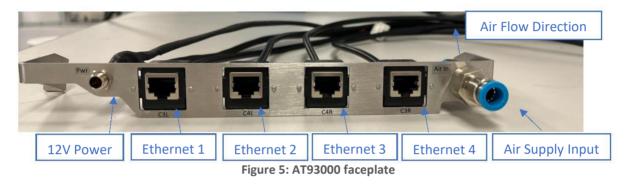
Faceplate Checks

Refer to Figure 5.

Are Power, Ethernet and Air Supply securely attached to AT93000 faceplate?

- Is 12V power plugged into test floor outlet and power supply switch turned on?
 - Switch is on backside of 12V power supply box.
 - $\circ~$ If 12V supply is suspect, measure +12V across the diode shown in Figure 6 on both backplanes

Are ethernet cables plugged into ethernet switches connected to the V93000? Is air cooling supply ON and flowing > 1CFM into the twinning frame?



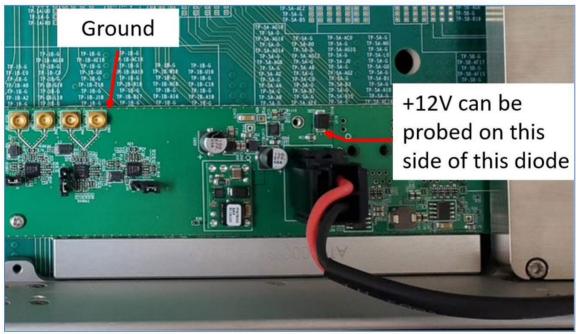


Figure 6: AT93000 +12V power

Backplane Jumper and Sync Cable Checks

Make sure the backplane jumpers and sync cables between backplanes 1 and 2 are properly installed for your application. Each application may require different jumper settings and a different cable installation. Consult the application's documentation for correct settings



Diagnostic GUI Manual Disclaimer

This manual describes diagnostic GUI operation where the Source and Measure instruments are both present inside the Multilane twinning frame assembly.

Examples of Source and Measure:

| | Backplane | Backplane | |
|-----------|-----------|-----------|--------------------------|
| Example # | Source | Measure | Described in this manual |
| 1 | BERT Tx | BERT Rx | YES |
| 2 | BERT Tx | DSO Rx | YES |
| 3 | None | DSO Rx | NO (contact Multilane) |

In Example 3 above, an external source must be used to perform DSO Rx diagnostics. The diagnostic GUI supports the following Multilane benchtop instruments that can be used as sources; however, cabling to the DSO Rx backplane should be done with the assistance of Multilane support.

| | External | Backplane | |
|---|----------|-----------|--------------------------|
| | Source | Measure | Described in this manual |
| 4 | ML-4039E | DSO Rx | NO (contact Multilane) |
| 5 | ML-4039D | DSO Rx | NO (contact Multilane) |
| 6 | ML-4035 | DSO Rx | NO (contact Multilane) |

In addition, if the customer wants to use an external DSO to review the BERT Tx window characteristics, the following configuration is also supported by the GUI:

| Example # | Backplane Source | External Measure | Described in this manual |
|-----------|---------------------|---------------------|--------------------------|
| 7 | BERT Tx | ML4025 | NO (contact Multilane) |



Diagnostic GUI

When the GUI is opened, three options are available: "Load from Model File", "Skip", and "Create a Model File".

- 1. Load from Model File: allows the user to browse a previously made Model File containing the instruments info including IP addresses in order to run diagnostics with a simple click. One can always manually add additional instruments.
- 2. Skip: allows the user to only manually add the instruments needed for diagnostics.
- **3.** Create a Model File: user can use this option to create or modify a model file in a simple and easy way. Refer to <u>Appendix I</u> for more info.



Figure 7: ATE Diagnostic GUI

Once the instruments are inserted, by loading a model file or adding them manually by specifying the IP and type as shown in Figure 8, the user can begin the diagnostics process.

| Model Device Devices adde | ed using | Add Module X |
|------------------------------|---------------------|----------------|
| Skot 1R : DSO model | ile Device Name: | AT4025 |
| Slot 1L : BERT | IP: | 172.16.201.151 |
| Custom Device 🗧 💿 | Туре: | DSO 👻 |
| AT4039D : BERT | | • Add |

Figure 8: Adding Module

AT-BERT

Connect to your desired BERT by clicking on the red dot next to it; the dot should turn into green in case of successful connectivity. Once a connection is secured, the user will be able to access three different sections listed below. "Save" button will allow user to save all the instrument's info shown in Module Settings and Loopback sections, while the bottom Logger section lists the successful processes.



Module Settings

In module settings the user will be able to detect the instrument's temperature in addition to the board revision, FW revision, calibration, IP address, supported FW options, and others, as shown in Figure 9.

| Module Settings Monitor Loopback Module Settings Monitor Loopback | multil and an | | | | ATE-Diagno | stic | | | | - 8 × | |
|--|--------------------------------|----------------------------|---------------------------|--|-------------|------|--------------|--|------------|-----------------|--|
| Sint 11: BIT | Model Device | | | | | | | | | | |
| A 11. 1271 Media Setting: know loopback A ratio 200 (100) A 100 (100) Board BD < | Get 18 - DGO | [172.16.108.193] : AT403 | 39E-4344 | | | | | | | Refresh Pl Save | |
| Refresh Model Trib Board Rev PW Rev PL Rev Scalibrated High Galbration Date Boord.coder Mode Temperature (*C) Value Statu B 2 1 0 0 0 43:30 Enteret B 2 1 1 0 0 0 43:30 Enteret B 2 1 1 0 0 0 43:30 Enteret B Statut Galavated High Galbration Date Boord.coder Mode Temperature (*C) Enteret B Statut Galavated Galavated Hot 10:22:22:42 E FW Optone F Statu Statu Statu Hot Supported Hot Suported Hot Supported Hot | | Module Settings Monito | or Loopback | | | | | | | | |
| Board ID Board Rev FW Rev FL Rev Is Calibrated High Calibration Date Boodcoder Mode Temperature (*C) Value SV44 B 2 1 1 0 0 43:30 Wale SV44 B 2 1 1 0 0 43:30 Wale SV44 B 2 1 1 0 0 43:30 Wale SV44 B 2 Is Calibrated High Calibration Date 0 43:30 Wale SV44 B 2 Is Calibrated High Calibrated High 0 0 43:30 Wale State Galoway Mc 491:622:52.4 49 | SKEL: BERI | Refresh | | | | | | | | | |
| M ATADODD : RERT Walke | Custom Device 🗧 🔍 | | | | | | | | | | |
| Number Name Norm | | | | | PLL Rev | | | | | | |
| p Subert Galaxway MAC Wake 172.16.108.193 255.255.00 172.16.15.1 491.622-26.4E Wake 77ap FiR Subaria Supported Suppor | 4140390 : BERT | | В | | | | | | | 43-36 | |
| Value 172.16.08.193 255.255.00 172.16.13.1 491422-26.4E FW Options Suburi Supported Su | | Ethernet Connection | | | | | | | | | |
| FW Options Subus F 7.0p FR Supported CTLE All Channels Net Supported CTLE Single Channel Net Supported FEC Net Supported Gary Mapping Supported WA2 Supported SR4 High Rate Supported State Supported State Supported State Supported Suppo | | | | | | | | | | | |
| Statue 7.1p FIR CTLE All Channels CTLE Jail Channels Craw Mapping Supported MA4 Supported MA4 Supported SNR Hulp Rale SNR Hulp Rale SNR Hulp Rale SNR Hulp SNR Hulp Rale | | | 172.16.108.193 | | 255.255.0.0 | | 172.16.115.1 | | 4-91-62-2- | 2C-4E | |
| Y Tap FIR Supported CTLE Single Channel Nel Supported CTLE Single Channel Nel Supported Nel Z Supported SRE Low Rate Supported Ster TL] : Eri Lan 25 14:06:05 2021: Connected Successfully to 172.16.108.193 (Ard0300) : Fri Jan 25 14:06:19 2021: Connected Successfully to 172.16.108.113 | | FW Options | | | | | | | | | |
| CTLE All Channels Net Supported Cary Mapping Supported NR2 Supported NR4 Supported SR4 High Rate Supported State NR2 Supported State NR2 Supported State NR2 Supported | | | | | | | | | | | |
| CTLE Single Channel Not Supported Gray Mapping Supported Not 2 Supported Not 4 Supported Not 4 Supported Not 4 Supported SNR Low Nate Supported SNR Low State Supported Solution (1) Fil Nate State State Supported State Supported State Sup | | | | | | | | | | | |
| FEC IntO Supported Supported Supported NR2 Supported PRE Coling Supported SRE High Rate Supported | | | | | | | | | | | |
| Gray Magoing Supported MAH Supported MAH Supported SNE Low Kate Supported SNE Low Kate Supported SNE KM2 Supported SNE KM4 Supported SNE DM4 Supported SNE Low Kate Supported SNE VAL Supported | | | | | | | | | | | |
| NR2 Supported NR4 A Supported SR1 High Rate Supported SR2 FM4 Supported Supported Supported S | | | | | | | | | | | |
| Pio Coding Supported SNR High Rate Supported SNR NR2 Supported SNR NR2 Supported SNR NR2 Supported SNR FM4 Supported User Defined Pattern Supported (Solut 1]: Fri Jun 25 14:06:05 2021: Connected Successfully to 172.16.108.103 (AF4030D): Fri Jun 25 14:06:19 2021: Connected Successfully to 172.16.109.113 | | | | | | | | | | | |
| SND High Rale Supported Supported SND WM 4 User Defined Pattern Supported Su | | | | | | | | | | | |
| SNR Low Rate Supported Sup | | | | | | | | | | | |
| Skit Nik2 Supported User Defined Pattern Supported (Stot 11] : Fri Jun 25 14:06:19 2021: Connected Successfully to 172.16.108.193 (AT40396)]: Fri Jun 25 14:06:19 2021: Connected Successfully to 172.16.109.113 | | | | | | | | | | | |
| Supported User Defined Pattern Supported Suppo | | | | | | | | | | | |
| [Sot 11] : Fri Jun 25 14:06:19 2021: Connected Successfully to 172.16.108.193 (AT403910) : Fri Jun 25 14:06:19 2021: Connected Successfully to 172.16.109.113 | | | | | | | | | | | |
| | | | | | | | | | | | |
| AT40390) : Fri Jun 25 14:06:19 2021: Connected Successfully to 172.16.109.113 | | | | | | | | | | | |
| AT40390) : Fri Jun 25 14:06:19 2021: Connected Successfully to 172.16.109.113 | | | | | | | | | | | |
| AT40390) : Fri Jun 25 14:06:19 2021: Connected Successfully to 172.16.109.113 | | | | | | | | | | | |
| AT40390) : Fri Jun 25 14:06:19 2021: Connected Successfully to 172.16.109.113 | | | 22 C 122 C 122 C 2 | | | | | | | | |
| | [Slot 1L] : Fri Jun 25 14:06:0 | 15 2021: Connected Success | fully to 172.16.108.193 | | | | | | | | |
| toger (1965) | [AT4039D] : Fri Jun 25 14:00 | 6:19 2021: Connected Succe | ssfully to 172.16.109.113 | | | | | | | | |
| Lagger (Picoty | | | | | | | | | | | |
| tager (2007) | | | | | | | | | | | |
| toger (Pissty | | | | | | | | | | | |
| Loger Rissly | | | | | | | | | | | |
| | Logger Roaty | | | | | | | | | | |

Figure 9: Module Settings

Monitor

In the monitor section, the user can track the different settings applied to the BERT including the amplitude, pre- and post- emphasis, 7 taps, Tx and Rx pattern, and others, as shown in Figure 10.

| dtilans | | | ATE-Diagnostic | | |
|--|--------------------------------|---------------------------------------|----------------|-----------|------------------|
| Model Device | | | | | |
| Skot 1R : DSO | [172.16.109.113] : AT4039 | | | | 🕫 Refresh 📑 Save |
| Slot 1L : BERT | Module Settings Monitor | Loopback | | | |
| SOCIE: DENI | Refresh | | | | |
| Custom Device 🗧 😐 | Current Configurations-Per | Channel | | | |
| ustom Device | | Channel 1 | Channel 2 | Channel 3 | Channel 4 |
| AT4039D : BERT | Amplitude | 80 | 80 | 80 | 80 |
| | Inner Eye | | | | |
| | MainTap | 750 | 750 | 750 | 750 |
| | Outer Eye | | | | |
| | Post Emphasis | | | | |
| | Pre Emphasis | | | | |
| | RX CTLE | | | | |
| | RX DFE | | | | |
| | RX Invert | | | | |
| | RX Pattern | PRBS 7 | PRBS 7 | PRBS 7 | PRBS 7 |
| | TX Enable | | | | |
| | TX Pattern | PRBS 7 | PRBS 7 | PRBS 7 | PRBS 7 |
| | Tap 1 | | | | |
| | Tap 2 | | | | |
| | Tap 3 | 500 | 500 | 500 | 500 |
| | Tap 4 | -100 | -100 | | -100 |
| | Tap 5 | | | | |
| | Tap 6 | | | | |
| | Tap 7 | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | connection between TX and R | K pent your channel must be locked | | | |
| raused]. In order to rea | a ber, Error Count, and Time 5 | pent your channel must be locked | | | |
| (T4039D] : Fri Jun 25 14:0 Nannel 4 | 8:23 2021 | | | | |
| | | | | | |
| | | | | | |
| ogger I flandin | | | | | |





Loopback

In loopback section, the user first must "initialize" in order to generate a signal from the BERT. The GUI will specify what settings are being set, and it can be also tracked in the Monitor section. After initialization, a refresh button should be clicked to get latest BER and SNR values. One should also check the lock bar highlighted below, if the lock goes green next to a tested channel, then the **BERT transmit and receive sides work well**.

| multilane | | | ATE-Diagnostic | | - 8 × | | | | |
|---|--|---------------------------------------|----------------|-----------|------------------------------------|--|--|--|--|
| Model Device | [172.16.109.113] : AT40390 | | | | © Refresh 🗎 Save | | | | |
| Sot 1R : DSO | | | | | | | | | |
| Sot 1L : BERT | Module Settings Monitor | | | | | | | | |
| - 364 IL . 0.41 | Initialize Refresh | | | Ch 1 | Ch 2 Ch 3 Ch 4 ch 5 ch 6 ch 7 ch 8 | | | | |
| Custom Device 🛛 😫 💿 | Results | | | | | | | | |
| AT4039D : BERT | | Channel 1 | Channel 2 | Channel 3 | Channel 4 | | | | |
| S A140390 DERI | SNR | | | | 33.600 | | | | |
| | BER Error Count | | | | 0.000 | | | | |
| | Time Spent | | | | 9 | | | | |
| | | | | | | | | | |
| | Advanced-Per Channel | Advanced-Per Channel | | | | | | | |
| | | Channel 1 | Channel 2 | Channel 3 | Channel 4 | | | | |
| | RX DSP Ready | | | | | | | | |
| | RX FW Lock Status | | | | | | | | |
| | RX PLL Lock | | | | | | | | |
| | RX Signal Detect | | | | | | | | |
| | TX PLL Look | | | | | | | | |
| | | | | | | | | | |
| [AT4039D] : Check Physica [AT4039D] : In Order to re | I connection between TX and R) ad Ber, Error Count, and Time Sj | K pent your channel must be locked | | | | | | | |
| [AT4039D] : Fri Jun 25 14: Channel 4 | | | | | | | | | |
| | | | | | | | | | |
| Logger Ready | | | | | | | | | |

Figure 11: Loopback

AT-DSO

Connect to your desired DSO by clicking on the red dot next to it; the dot should turn into green in case of successful connectivity. Once a connection is secured, the user will be able to access two important different sections listed below. "Save" button will allow user to save all the instrument's info shown in Module Settings and lock status of Monitor section, while the bottom Logger section lists the successful processes.



Module Settings

In module settings the user will be able to detect the instrument's temperature in addition to the board revision, FW revision, FPGA revision, IP address, supported FW options, calibration coefficients (by clicking "Load Calibration"), and others, as shown in Figure 12.

| multilane | | | | ATE-Diagnostic | | | – 6 × | | |
|--------------------------------|-------------------------------------|-------------------------------|-----------------------------|-------------------------|---------------------------|-----------------|--------------------------|--|--|
| | Terro 16 000 000 | 1 - MI - 4000E | | | | | Pl Save | | |
| 0 DSO : DSO | | | | | | | | | |
| | Module Settings Monitor Maintenance | | | | | | | | |
| | Refresh | | | | | | | | |
| | Module Info | | | | | | | | |
| | Value | Board ID 4525 | Serial Number 2E2BF76A63 | Hardware Rev B | FW Rev 0.2 | FPGA Rev 0.1 | Temperature (°C) 60 | | |
| | | | ELLIN FORMU | | | | | | |
| | Ethernet Conn | | | | | | 1012/1 | | |
| | Value | IP 172.16.222.38 | | Subnet 255.255.255.0 | Gateway 172.16.222.100 | | MAC 68-27-19-2D-87-EF | | |
| | | | | 233.233.233.0 | 172.10.222.100 | | 00 27 19 20 07 11 | | |
| | Calibration File | | | | | | | | |
| | Load Calibrati | | | | | | | | |
| | {CH1} Rates = 30 | | | | | | | | |
| | A = 0.081356 | 837771851,0.0949458195425 | | | | | | | |
| | B = 2654.186 | 7622066,3098.8888324842 | | | | | | | |
| | {CH2} Rates = 30 | | | | | | | | |
| | A = 0.076676 | 2900856478,0.088910871722 | 3069 | | | | | | |
| | B = 2505.584 | 97822199,2908.13941190012 | | | | | | | |
| | {CH3} | | | | | | | | |
| | Rates = 30 | 1032031924,0.089524871603 | 2007 | | | | | | |
| | | 49124317,2927.50005956841 | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| [DSO] : Fri Jun 25 14:36:34 20 | 021: Connected S | Successfully to 172.16.222.38 | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Logger Planty | | | | | | | | | |
| | | | | | | | | | |

Figure 12: Module Settings

Monitor

In the monitor section, the user will be able to detect Eye diagrams of the signal coming from the BERT (if connected). First click on "Configure" and select the specs of the signal received from the BERT as shown in Figure 12. Then click on refresh to detect the eye diagrams, Figure 13. One should also check the lock bar highlighted below, if the lock goes green next to a tested channel, then the **DSO receiver and clock input are working well**.

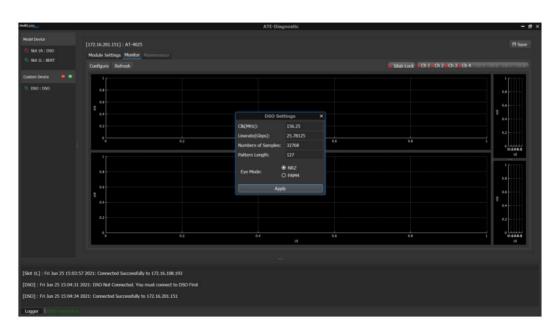


Figure 13: Monitor – Configuring



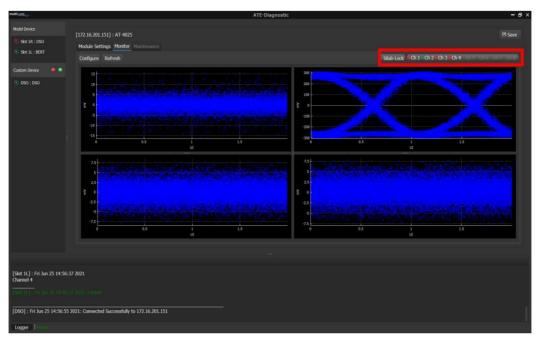


Figure 14: Monitor - Eye Diagrams

AT-BERT and AT-DSO

The user can connect to as many BERTs and DSOs as needed using the Diagnostic GUI. By that, one should refer to the <u>Loopback</u> section of the BERT to generate a signal and detect it on the <u>Monitor</u> section of the DSO.

Change IP address, Firmware and FPGA

If the IP address, Firmware and FPGA needs to be changed, the field service engineer needs to be referred to our public website, V93000 ATE Test Solutions and refer to the Application Notes where you can find the PDF about Changing IP, FW, and FPGA.



Changing IP, FW, FPGA

The user could change the IP address and Firmware through the Diagnostic GUI using a USB cable over an Ethernet cable.

- Using AT1000 backplane: The user should plug the USB cable into the connector located on the backplane.
- Using AT4000 Backplane RevD: The user should plug the USB cable into the connector located on the backplane and plug the instrument into the U453 Slot of the backplane.

The user could change the FPGA through the Diagnostic GUI using an Ethernet cable.

- Using AT1000 backplane: The user should use an ethernet cable.
- Using AT4000 Backplane RevD: The user should use an ethernet cable and can plug the instrument into any slot of the backplane. (U450, U451, U452, U453)

Refer to <u>Appendix II</u> for more info.

multiLane

Connecting Instruments Examples

For the user to run a BER or observe an eye diagram, the transmitted signal of the BERT should be connected to its error detectors or DSO channels respectively. One should always refer to the instrument's datasheet or user manual for the pinouts.

Suggested Minimum Materials to connect Tx to Rx channels:

| Multilane P/N | Description | Quantity | Color Used in this document |
|---------------|---------------------------------|--------------------|-----------------------------|
| AT93000-POGO | Blindmate connector shown in | 1 or 2 | |
| | Figure 15 | | |
| TM40-0200-01 | Cable: 1x1 38cm, SMPM-BM(f) <-> | 2 (ship as matched | Green Lines |
| | 1.85mm(m) | pairs) | |
| TM40-0430-01 | Cable: 1x1 38cm, SMPM-BM(f) <-> | 2 (ship as matched | Red Lines |
| | 1.85mm(f) | pairs) | |



Figure 15: AT93000-POGO

NOTES:

All of the instruments datasheets and user manuals are available on MultiLane website.

- Refer to the <u>System User Manual</u> for clock routing.
- Refer to the <u>Diagnostic Kit Manual</u> for cables routing.
- 1. Figure 16 and Figure 17 shows the configuration of an AT4039E (or AT4039D) signal (Tx) transmitted into the AT4025 channels (Rx) for eye diagram observation. Both ATs are in the same cassette.



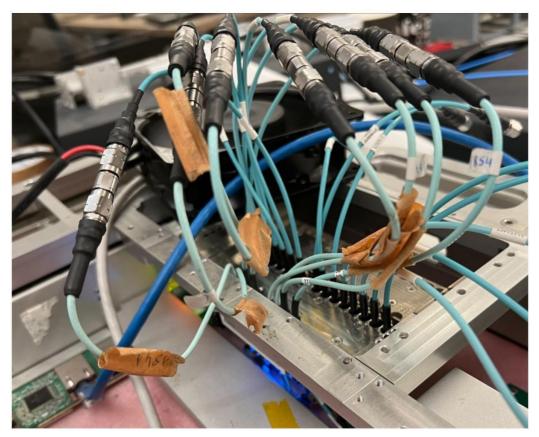


Figure 16: Example on Eye Diagram Configuration – AT4039E + AT4025

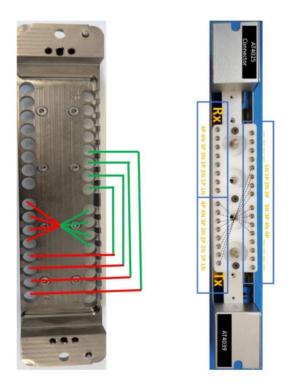


Figure 17: Example on Eye Diagram Configuration – AT4039E + AT4025

multiLane Appendix I: Create a Model File

This option allows the user to create or modify a model file by clicking on "Load" or "Save", in addition to the "add" and "remove" buttons concerned in instruments.

1. Add: as seen in Figure 19, adding an instrument will request the type, IP, number of channels, slot number of the cassette location and the name of the instrument that can be set to the user's desire and not necessarily the real name of the instrument.

| | Add Module | | | | | | × |
|--------|----------------|------------|-----|------|--|---------|---|
| Туре | IP | NbOfChanne | els | Slot | | Name | |
| BERT 🝷 | 172.16.109.113 | 4 | | 1R | | AT4039D | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | 🗨 Ade | d |
| | | | | | | | |

Figure 18: Adding Instrument in Model File

2. Remove: after adding an instrument, or if a model file is loaded, one can always delete one of the instruments channels or drag all of them to delete the entire instrument as shown in Figure 20.

NOTES: In addition to the previous, the following can also be done as seen in Figure 20:

- 1. Add model file description
- 2. Specify the calibration status of the BERT: OFF, Factory, or custom by writing the path of the calibration file extracted from the ATE Calibration GUI available on MultiLane <u>website</u>.

| multicane | | | Model-Ed | itor | | - B> |
|---------------|--------------------------|-------|----------------|---------|-----------------|-----------------|
| Add | Remove | | | | | 🖓 Load 🛛 🗎 Save |
| Descriptor | | | | | | |
| | | | | | | |
| Configuration | n Table | | | | | |
| | Туре | TX/RX | IP | Channel | Name | Slot |
| | BERT | | 172.16.109.113 | | AT4039D-1R.1-TX | |
| | BERT | | 172.16.109.113 | | AT4039D-1R.2-TX | |
| | BERT | | 172.16.109.113 | | AT4039D-1R.3-TX | |
| | BERT | | 172.16.109.113 | | AT4039D-1R.4-TX | |
| | BERT | | 172.16.109.113 | | AT4039D-1R.1-RX | |
| 6 | BERT | | 172.16.109.113 | | AT4039D-1R.2-RX | |
| | BERT | | 172.16.109.113 | | AT4039D-1R.3-RX | |
| 8 | BERT | RX | 172.16.109.113 | 4 | AT4039D-1R.4-RX | 1R |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| Calibration 1 | | | | | | |
| Calibration | IP Status | | | Path | | |
| 1 177 | 2.16.109.113 OFF | | | Path | | |
| | OFF Factory Custom | | | | | |
| | | | | | | |
| | | | | | | |

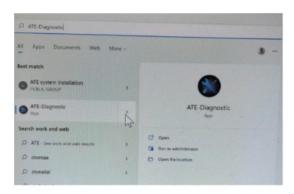
Figure 19: Model-Editor

multiLane

Appendix II: Change IP address, Firmware and FPGA

Changing the IP Address

i. Launch ATE-Diagnostic



ii. Select the start button



iii. Select the instrument to change the IP address:

| multiLang | | ATE-Diagnostic | | - 🗆 × |
|---------------|--------------|----------------|---------|-------|
| Custom Device | • | | | |
| | | Add Module | × • • × | |
| | Device Name: | AT4025 | | |
| | IP: | 172.14.100.95 | | |
| | Туре: | AWG | | |
| | | BERT | | |
| | | 050 | | |
| | | | | |
| | | | | |
| | | | | |
| Logger | | | | |

Write the device Name, and the corresponding IP address, and select the type (BERT, DSO, AWG). Select the Add button.

Click on the red circle next to the Device Name located on the left to connect to the instrument. When the device is connected, then the circle will turn green.



| multiLane | ATE-Diagnostic | - 🗆 × |
|----------------------|----------------|-------|
| Custom Device 🛛 🖨 💿 | | |
| AT4025 : DSO | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| Logger DSO Not Conne | | |

After connecting to the instrument, the red circle will turn green. Click on the **refresh** button to check the device settings.

| will are of the | | | AT | E-Diagnostic | | | - 8 × |
|------------------------------|--|--|---------------|------------------------------------|----------------------|---------------|-------------------|
| Custom Device 🛛 🗭 🏶 | Value Ethernet Conn Value Calibration File Load Calibratio | Monitor Data Ethernet Settings O USB IP | Firmware FPGA | nance Tool Read Read Read | Wite Wite Wite | FRCA Rev | E Sive |
| [d] : Wed Jul 13 10:04:28 20 | 22: Connected Success | fully to 172.16.10 | 0.50 | | | | |
| [d] : Wed Jul 13 10:04:48 20 | 22: Disconnected from | 172.16.100.50 | | | | | |
| Logger DSC Document | | | | | | | |
| Type here to searc | | 0 HE | 💼 🖬 😑 🎯 | os 🕫 🛃 🔕 (| 🤹 🖬 🧀 n | 1 (N) (A) (A) | 🗟 🛥 🗺 🍂 🕸 1004 AM |

Right-click on the device name and click on the **Maintenance Tool** to change the IP address, Network Mask, or Gateway; apply write.

| multilant _{eri} | | | | ATE-Diagnostic | | | - 6 × |
|--------------------------------|--|------------------------------|---------------|----------------|---------|------------|----------------------------------|
| Custom Device | [172.14.100.95 Module Setting Refresh Module Info | i) : AT-4025 Monitor Data | | | | | |
| | Value | Board ID | Serial Number | Hardware Rev | FW Rev | FPGA Rev | Temperature (°C) |
| 1 | Ethernet Conn Value | ection IP | | Subnet | Gateway | | MAC |
| | Calbration File Load Calibratic | | | | | | |
| | | | | | | | |
| | | | | | | | |
| [AT4025] : Fri Aug 26 02:41:37 | 2022: Connected S | Successfuly to 172.1 | 4.100.95 | | | | |
| [AT4025] : Fri Aug 26 02:41:44 | 2022: Disconnecte | d from 172.14.100.9 | | | | | |
| [AT4025] : Fri Aug 26 02:43:05 | 2022: Connected S | Successfully to 172.1 | 4.100.95 | | | | |
| Logger 050 Connected | | | | | | | |
| D Type here to search | 1 | o # | 0 🖬 💼 | 🤹 🤨 🔕 🖞 | 8 🖬 🔞 | 🥚 897F 🔨 🧕 | ■ 10 # 4* 248 AM \$/26/2022 🖷 |



NOTES:

One should use a USB cable over an Ethernet cable if the cassette is removed and connected to AT1000.

| dtilang | | ATE | -Diagnostic | | | - 6 × |
|-----------------------------|--|-----------------|-----------------------------------|---------------------------|----------|-----------------------------------|
| Cuiton Devoc 🔶 🕞 d : D60 | (122.15.100.50) : HL Module Stittings Module Stittings National Varia Calisticator He Calisticator He Calistic | s Firmware FPGA | ance Tool Read Read Read | X Wite Wite Wite | IPGA Rev | E Save Temporature (*C) MAC |
| | Connected Successfuly to 172.16.1 Disconnected from 172.16.100.50 | 30.50 | | | | |

Updating the Firmware:

Contact MultiLane ATE Support to make sure you have the right Firmware file before programming. If the wrong Firmware is programmed onto a device, it could potentially break the unit.

i. Select Firmware



ii. Select a **USB cable** to connect.

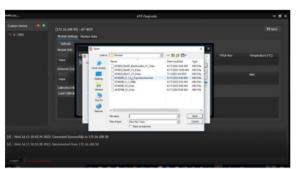




iii. Select ERASE



iv. Select the latest Firmware for loading.



v. Execute [Program] + [Verify]



The application then needs to be run, the unit reconnect power cycled via the Diagnostic GUI, and the fact that the Firmware is reading as the updated version confirmed. *Do not skip this step.*

Updating the FPGA:

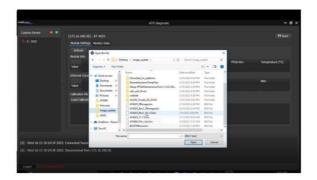
Installing the wrong FPGA has a high chance to break the unit, which MultiLane is not liable for. Please confirm with the MultiLane team before proceeding to make sure you have the right FPGA file before programming.

i. Select the FPGA option





ii. Load the latest FPGA program



iii. Upload the latest FPGA program



The unit reconnect then needs to be power cycled via the Diagnostic GUI, and the fact that the FPGA is reading as the updated version confirmed. *Do not skip this step.*



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