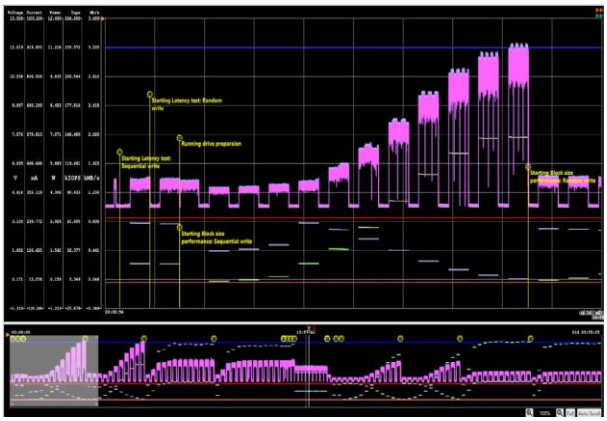
Gen6 Aon Desktop Drive Enclosure

Comprehensive testing for SSDs





Highlights

- Supports all standard EDSFF SSDs (E1 and E3 versions available). U.2 coming soon
- MCIO x8 connector for direct attachment to HBA or host system
- Automates: hot-plug, lane restriction, REFCLK isolation, PCIe error injection, SMBUS error injection and much more
- Temperature monitored enclosure with variable fan control for thermal throttling
- Power analysis and sideband capture available as an option
- Power injection port allows external control of power rails for voltage margining, crowbar and slew rate control (Requires additional PPM: QTL1999 or similar)
- External triggering ports for additional control or sideband/SMBUS output
- Compatible with Quarch Power Studio, QIS automation and existing Breaker control scripts
- Supports PCIe, CXL and OCP devices

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Use Cases

Characterization	Analyze power consumption during workloads and in sleep states
Thermal Throttling	Reduce airflow and test performance drop
Hotswap Testing	Test fast Vs slow hot-plug, unexpected power loss, varying voltage rail timings and more
Fault Injection	Create a huge range of interruptions or hard faults on power, sidebands, data and clocks
Power resilience	Test rail margining, ramps, glitches, brownout and crowbar (PPM required)
Debugging	Combine active testing and data capture to quickly home in on SSD faults

Measurement + Margining

When purchased with the additional **/PAM** option, the enclosure provides full power and sideband capture. We sample each rail at 250KHz. Digital sidebands are sampled at 1MHz. Quarch Power Studio or Python scripting can be easily used to capture power data, averaged down to a suitable sample rate for your purposes. Analog + Digital capture is particularly good for identifying issues with device enumeration and during some power state changes.

The external power injection port allows a Quarch PPM (QTL1999 and similar) to supply both power rails to the SSD. This enables full programmable control of both rails for a wide range of tests such as: Ramping, glitching, brownout and crowbar scenarios.

Individual sidebands can be directed out the triggering ports (Such as SMBUS) for each access. They can also be monitored via python or used as triggers to run other test actions such as glitches.

Finally, we track fan speed, internal temperature and (If available) drive reported temperature for comprehensive data on your SSD.

Breaker Control

Incorporating all our standard breaker features, you can take full control of hot-plug and physical layer fault injection across the SSD interface.

This can be done at a click of a button, or via simple Python scripting.

On the fully featured versions, all power rails, sidebands, clocks and data lanes are instrumented for control. Lower cost versions are available with control over everything except for the high-speed data lanes.

As the product works on the physical layer, any protocol electrically compatible with (or built on) PCIe is supported. This includes NVMe, OCP and CXL devices.



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Basic Configuration

Aon Enclosure	The main unit
Power Supply	External 12v 100W power supply, with country specific plug
USB Cable	2-meter USB-C to USB-A cable

Optional Add-ons

PAM	Add calibrated power analysis and sideband capture by adding the /PAM code to the end of the part number. This in an internal addition to the enclosure and can also ve
PPM	Connect an external Quarch PPM (Purchased separately) to collect drive power measurements and margin and interrupt power to the device. Add QTL1999 as a separate line item to your order.

Also Supplied

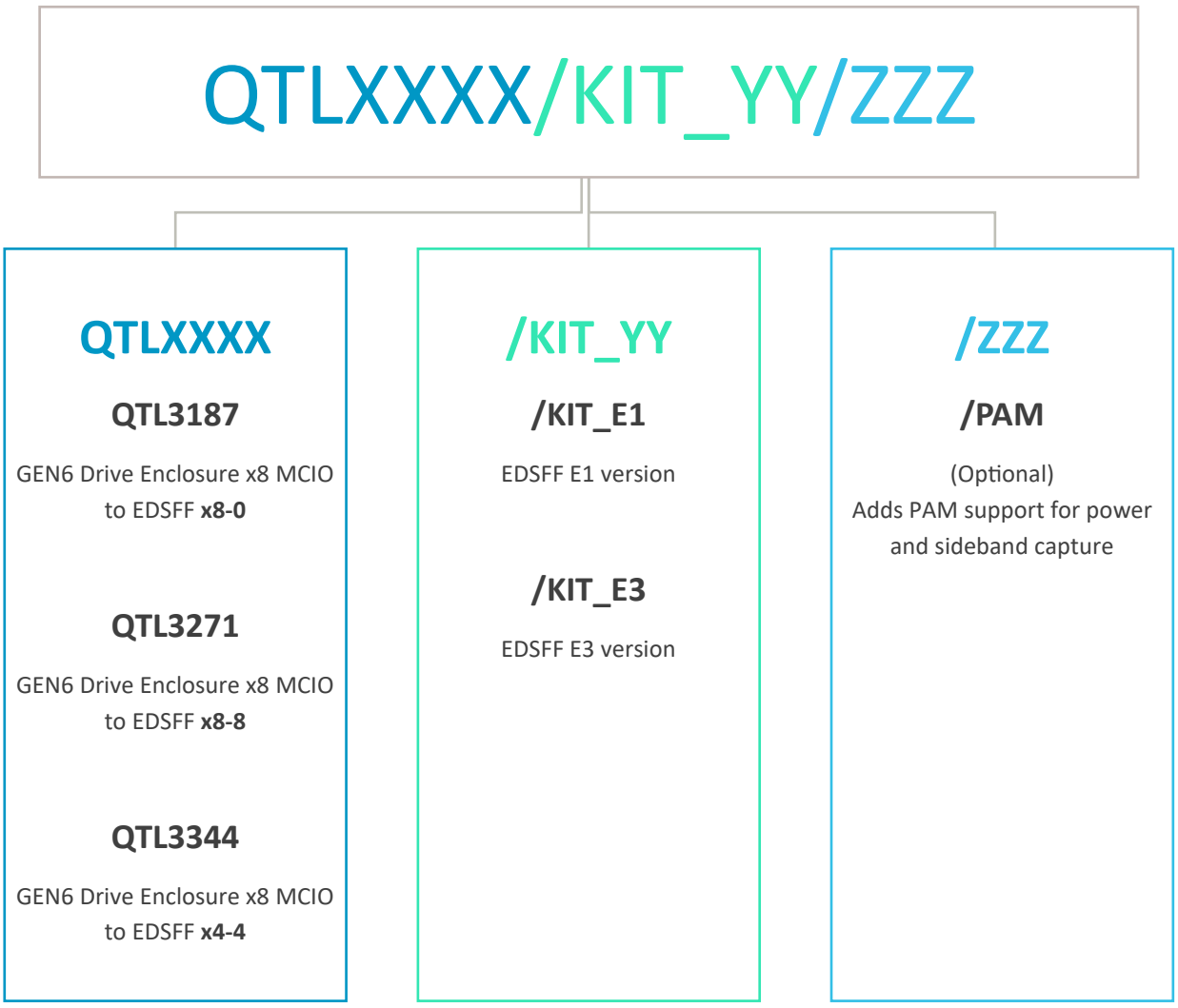
Downloads

Our website contains many useful downloads to help you get started
Our software and automation libraries are all free to use

- USB Drivers – www.quarch.com/downloads/drivers
- Product Details – www.quarch.com/products/desktop-drive-enclosure
- Example Scripts – www.quarch.com/downloads/application-note
- Quarch Power Studio – www.quarch.com/products/quarch-power-studio
- Python Package – www.quarch.com/products/quarchpy-python-package

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Products Versions



Lane Width Option	Description
x4-4	4 PCIe lanes are supported to the device. All 4 lanes are controlled via high-speed switches
x8-8	8 PCIe lanes are supported to the device. All 8 lanes are controlled via high-speed switches
x8-0	8 PCIe lanes are supported to the device. All 8 lanes are directly connected, so there is no switching in the path. This is lower cost and better SI but means that you cannot isolate or glitch the data lanes

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Related Products

Product Code	Description
QTL1999	HD Programmable Power Module (PPM) *Adds external programmable power supply and power analyzer*
QTL2181	HD PPM to HD 100cm Fixture Cable *Longer cable for connecting QTL1999 to the Aon Enclosure*

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Technical Information

Characteristics	QTL3178	QTL3271	QTL3344
SSD Supply	12v and 3.3v[*1]		
Input Supply	12v, 100w		
Max SSD power rating	25w		
SSF Form Factor	E1 or E3 Options		

*[*1] With optional PPM attached: 12v rail = 0v to 14.4v and 3v3 rail = 0v to 3.96v*

Measurement (via PAM)	QTL3178	QTL3271	QTL3344
Sampling Rate	250 KHz Power, 1MHz Sidebands		
Typical Voltage Accuracy	±(2mV+1%)		
Current Accuracy	±(2mA+1%) @ 1 - 4000mA		
Low Range Accuracy	±(25uA+1%) @ 100uA - 1mA		
Voltage Range	40mV - 15V		
Current Range	100uA - 12A		
Sidebands Captured	DUALPORTEN, PRSNT0n, REFCLK0_OK, PERST0n, PRSNT1n, REFCLK1_OK, PERST1n, SMCLK, SMDAT, BLUE_LED, AMBER_LED, MFG		

Signal Control	QTL3178	QTL3271	QTL3344
High speed signals[*2]	x8-0 (Not switched)	x8-8 (All Switched)	x4-4 (All Switched)
Sidebands	Switched		
Power Rails	Switched		
Clocks	Switched		

*[*2] See the Product Versions descriptions above for more details on lane width options*

External Connections	QTL3178	QTL3271	QTL3344
Power Supply	External 12v, 100w PSU		
SSD Connection	EDSFF x8		EDSFF x4
Control Ports	USB-C, LAN		
Triggering	MCX IN/OUT		
Power Injection	10 Pin Mini Tek (PPM)		

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Next Steps

See the product page
www.quarch.com/products/desktop-drive-enclosure

Request a quote, lead time or free evaluation from your local partner
www.quarch.com/resellers

Support

Quarch provides direct support to all customers, regardless of the sales channel you use to purchase our equipment. We are available over email, or by phone during UK office hours. Our experienced regional partners are also able to handle many of the most common questions you might have.

We do our best to repair any Quarch products, even if they are long out of warranty. Repair prices are based on the cost to us, so are as affordable as possible. Contact our support team below to get started.

Our support is normally free, though there may be charges if you require on-site training or significant development work. Please contact us if there is anything we can do to help.

Please see our website for access to drivers, technical manuals, quick-start guides, example scripts and more.



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