Power Analysis Modules

Capture and analysis of power and control signals
across a wide range of interfaces

Quarch
Data Sheet

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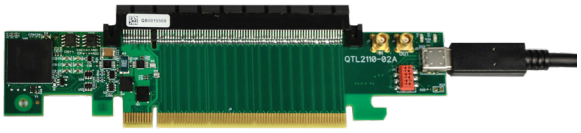
Power Analysis Modules

Capture and analysis of power and control signals across a wide range of interfaces



Highlights

- Multi rail DC voltage/current/power measurement
- High power mains analysis via 3-phase PAM
- Digital sideband capture
- Oscilloscope function allows accurate power recording
- Low current measurement system, accurate at uA range
- Plug-and-play fixtures support a range of different interfaces
- Simple automation options

Use Cases

Characterisation	Power consumption monitering over long periods and different use cases
Power Quality	See power up ramps, voltage noise and unusual power events
Sideband analysis	Capture sideband transitions and timings
Automation	Simple scripted control for complex unsupervised testing
External Triggering	Link to external test equipment to increase your test options

Measurement

Voltage and Current are simultaneously sampled, to give the most accurate possible power measurement. High resolution sideband capture allows you to see the precise time that sidebands assert in comparison to a power event.

Long term recording allows hours or even days of capture at high resolution. This is an order of magnitude more than is available on most alternative capture options.

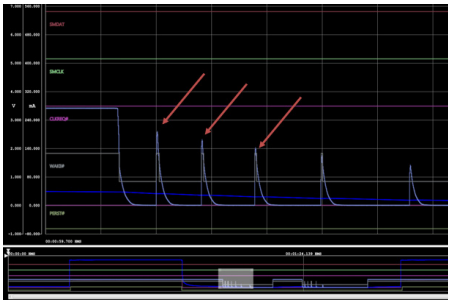
Quarch Power Studio allows you to add custom channels, annotations and comments. This provides you with a full overview of the performance of your product. Full access to raw data for your own processing is provided.

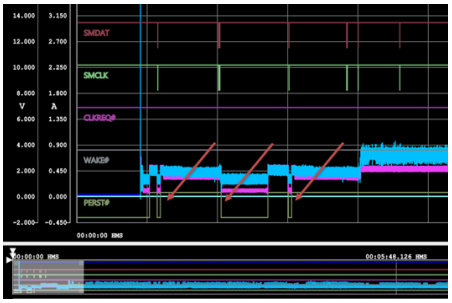
Control and Automation

Basic capture in Power Studio can be setup and run in seconds. USB and LAN control options allow for both bench testing and remote lab environments.

Our Python API allows automation of Power Studio, or direct access to the PAM to capture raw data

Application notes are available to help you get started quickly





Supplied Parts

QTL2312 - External PSU, 2 meter USB cable, USB-C cable to connect to fixture
Fixtures - No supplied parts, requires QTL2312

Also Required

Downloads - Our website contains many useful downloads to help you get started: www.quarch.com

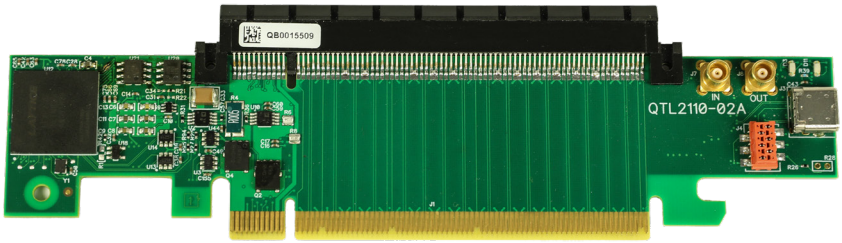
USB Drivers
Technical Manuals
Quick Start Guides
Example Scripts
Power Studio Application

Products Versions

Product Code	Product Options	
QTLXXXX	**QTL2312/KIT_1M**	Power Analysis Module - 1M cable to fixture
	QTL2312/KIT_2M	Power Analysis Module - 2M cable to fixture
	QTL2312/KIT_3M	Power Analysis Module - 3M cable to fixture

PAM Fixtures - For QTL2312

Product Code	Description
QTL2347	Gen4 PCIe x16 PAM Fixture Test fixture for x16 PCIe Slot based devices up to Gen4 speeds
QTL2573	Gen4 M.2 PAM Fixture Test fixture for M.2 M-key based devices up to Gen4 speeds
QTL2525	Gen4 SFF Drive PAM Fixture Test fixture for U.2, U.3, SAS and SATA devices up to Gen4 speeds
QTL2608	2 Channel Custom PAM Fixture Test fixture for custom wiring looms (2 power and 16 digital channels)
QTL2623	4 Channel Custom PAM Fixture Test fixture for custom wiring looms (4 power and 16 digital channels)
QTL2628	External Shunt Custom PAM Fixture Test fixture for embedded shunts (4 power and 16 digital channels)
QTL2673	Gen5 EDSFF E1 x4 PAM Fixture Test fixtures for EDSFF E1 x4 devices us to Gen5 speeds
QTL2788	Gen5 SFF PAM Fixture Test fixtures for U.2, U.3 and SAS/SATA devices us to Gen5 speeds
QTL2980	Gen5 Vertical M.2 PAM Fixture Test fixtures for M.2 M-key devices up to Gen5 speeds
QTL2910	Gen5 AIC x16 PAM Fixture Test fixtures for Gen5 AIC x16 devices up to Gen5 speeds
QTL2983	Gen5 AIC x16 PAM Fixture with AUX power Test fixtures for Gen5 AIC x16 devices up to Gen5 speeds with AUX power requirements



QTL2347 Gen4 PCIe x16 PAM Fixture

SFF-8639 - U.2/U.2/SAS/SATA PAM Fixture

2 Channel Custom PAM Fixture

Technical Information - PAM Controller

Output Characteristics	QTL2312
Input Voltage	12V DC
Form Factor	Desk Unit
Control Ports	USB, LAN
Injection Fixture Cable	USB-C
External Triggering	MCX IN/OUT

Technical Information - Injection Fixtures

Measurement Accuracy	QTL2347	QTL2573	QTL2525	QTL2608
Form Factor	GEN4 AIC x16	Gen4 M.2	Gen4 SFF	Custom Loom
Base Sampling Rate	250 KHz			
Sample Averaging	1 to 32K Samples			
Voltage Range	40mV - 19V			40mV - 15V
Current Range	100uA - 13A			100uA - 12A
Typical Voltage Accuracy	±(2mV+1%)			
Current Accuracy (100uA-1mA)	±(25uA+1%)			
Current Accuracy (1mA-13A)	±(2mA+1%)			

Measurement Accuracy	QTL2623	QTL2628	QTL2673	QTL2788
Form Factor	Custom Loom		GEN5 E1 x4	SFF
Base Sampling Rate	250 KHz			
Sample Averaging	1 to 32K Samples			
Voltage Range	40mV - 15V		40mV - 19V	
Current Range	10mA - 12A	uA - kA*1	100uA - 13A	100uA - 13A
Typical Voltage Accuracy	±(2mV+1%)			
Current Accuracy (100uA-1mA)	N/A	Shunt Dependant	±(25uA+1%)	
Current Accuracy (1mA-13A)	±(2mA+1%)*2	Shunt Dependant	±(2mA+1%)	

*1 Subject to your shunt resistor, 65mV max differential across shunt, see technical manual for details

*2 Accuracy applies to unit current range which is 10mA to 12A

Measurement Accuracy	QTL2980	QTL2910	QTL2983
Form Factor	Gen5 M.2	Gen5 x16 AIC	Gen5 x16 AIC +AUX
Base Sampling Rate	250 KHz		
Sample Averaging	1 to 32K Samples		
Voltage Range	40mV - 19V		500mV - 16V
Current Range	100uA - 13A		±162.5A*1
Typical Voltage Accuracy	±(2mV+1%)		±(2mV+1%)
Current Accuracy (100uA-1mA)	±(25uA+1%)		N/A
Current Accuracy (1mA-13A)	±(2mA+1%)		±(25mA + 1%)*2

*1 Max range for 12Vaux channel, other channels: 12V=±32.5A, 3v3=±13A, 3v3Aux=±3.25A

*2 This is the worst case on the 12Vaux channel, other channels are more accurate (3v3 is 2mA+1%)

Monitored Rails	QTL2347	QTL2573	QTL2525	QTL2608
Power Monitoring	3v3, 12v, 3v3_Aux	3v3	12v, 5v, 3v3_Aux	2 Power Rails
Digital Monitoring	PERST, WAKE, CLKREQ, SMDAT, SMCLK	CLKREQ, PERST, PEWAKE, SUSCLK, PEDET, ALERT, SMB_DATA, SMB, CLK, LED_1, DEVSLP, MFG_DATA, MFG_CLK	PERST, WAKE, PERSTB, SMBCLK, SMBDAT	16 Digital Channels

Monitored Rails	QTL2623	QTL2628	QTL2673	QTL2788
Power Monitoring	4 Power Rails	4 Power Rails	12v, 3v3_Aux	12v, 5v, 3v3_Aux
Digital Monitoring	16 Digital Channels	16 Digital Channels	PRSNT0, PERST0, PERST1/CLKREQ, LED, SMBRST, SMBCLK, SMBDAT, PWRDIS, MFG, DUALPORTEN, RFU	PERST, WAKE, PERSTB, SMBCLK, SMBDAT

Monitored Rails	QTL2980	QTL2910	QTL2983
Power Monitoring	3v3	3v3, 12v, 3v3_Aux	12v, 3v3, 12v_Aux, 3v3_Aux
Digital Monitoring	CLKREQ, PERST, PEWAKE, SUSCLK, PEDET, ALERT, SMB_DATA, SMB, CLK, LED_1, DEVSLP, MFG_DATA, MFG_CLK	PERST, WAKE, CLKREQ, SMDAT, SMCLK	PERST, WAKE, CLKREQ,, PWRBRK SMDAT, SMCLK, REFCLK_LOS