Labber Quantum
System Requirements &
Installation

KEYSIGHT
TECHNOLOGIES

Contents

System requirements

Recommended Standard Hardware Configuration

Multi-Chassis Configurations (2 or more)	Recommended (minimum)	Preferred	Notes
External Controller	HP Z8	HP Z8	

HP Z8 Configuration	Requirements	Preferred	Notes
BIOS	2.60	Latest	All versions within the recommended test list are sufficient. However, upgrading to latest version, when possible, is recommended.
RAM	96 GB	-	-
HDD	500 GB	-	-
CPU	Two lower mid-range Xeon processors	Two upper mid to high range Xeon processors	Must use two CPUs to maximize PCIe connectivity and performance. Other considerations: maximizing the performance of a system does not necessarily mean selecting a processor with the highest available core count. This is because higher core counts generally mean lower turbo frequencies. So, for software that is not highly parallel, higher core counts may lower performance. Additionally, consideration should be given to Windows licensing, which currently has a price increment above 16 core processors for Server OS configurations.
Windows 10 Pro, Windows 10 Pro for Workstations, Enterprise and Windows Server 16+	Version 10.10.18363 also known as Version 1909	Latest	Always start with latest version. In general, Windows 10 Pro for Workstations is recommended for higher end configurations, which includes multi-chassis configurations and/or require NVMe RAID configurations for data storage.

Single Chassis Configuration	Recommended (minimum)	Preferred	Notes
External Controllers	HP Z4	HP Z8	See Tested PC PXI/AXI Chassis Configurations.

HP Z4 Configuration	Requirements	Preferred	Notes
BIOS	HP 61 v02.41	Latest	All versions within the recommended test list are sufficient. However, upgrading to latest version, when possible, is recommended.
RAM	64 GB	-	-
SSD	256 GB	-	-
CPU	Lower mid-range Xeon processors	Two upper mid to high range Xeon processors	Must use two CPUs with HP Z8. Other considerations: maximizing the performance of a system does not necessarily mean selecting a processor with the highest available core count. This is because higher core counts generally mean lower turbo frequencies. So, for software that is not highly parallel, higher core counts may lower performance. Additionally, consideration should be given to Windows licensing, which currently has a price increment above 16 core processors for Server OS configurations.
Windows 10 Pro, Windows 10 Pro for Workstations, Enterprise and Windows Server 16+	Version 10.10.18363 also known as Version 1909	Latest	Always start with latest version. In general, Windows 10 Pro for Workstations is recommended for higher end configurations and/or require NVMe RAID configurations for data storage.

Single-Chassis configuration	
Embedded Controller M9037A	**Requirements**
BIOS	American Megatrends Inc. AG10 (10/12/2016)
RAM	16 GB
SSD	240 GB
Windows 10 Enterprise 2016 LTSB	Version 10.0.14393

Supporting Hardware Products for External Controllers	Recommended Platform	Notes
M9048A PCIe Desktop Adapter	HP Z4, HP Z8	Single-Chassis
M9049A PCIe High Performance Host Adaptor, Dual Port (x16), Gen 3	HP Z8	Multi-Chassis. Requires Star Connection on PCIe for enumeration. One per chassis up to four chassis with dual-cable connection (x16).
M9022A PXIe System Module, Single Port (x8), Gen 3	Single-Chassis	-
M9023A PXIe High Performance System Module, Dual Port (x16), Gen 3	Multi-Chassis	Requires Star Connection on PCIe, one per chassis, slot 1. M9024A Not Supported

Labber Software Driver Packages and Dependencies

Depending on the Labber drivers of interest, different sets of dependencies and licenses may be required. See *Section 3.1* for further instructions.

Software Driver Package	Other Licenses Required	Dependencies
Keysight PXI PWTSE Trigger	KS2201A PathWave Test Sync Executive	Common Software Compatibility
Keysight PXI Sequencer	KS2201A PathWave Test Sync Executive	Common Software Compatibility
Keysight PXI Digitizer Demodulation	KS2201A PathWave Test Sync Executive M5400DMOA (see table below)	Common Software Compatibility, M5400DMOA Software Gateware Compatibility and Dependencies
Keysight PXI Agile AWG	KS2201A PathWave Test Sync Executive M5400PLSA (see table below)	Common Software Compatibility, M5400PLSA Software Gateware Compatibility and Dependencies
Keysight PXI Digitizer	No	-
Keysight PXI AWG	No	-
Multi-Qubit Pulse Generator	No	-
Keysight PXI SMU	No	M960xPXIe instrument driver 3.5.1755.0 Instrument Hardware and Firmware
Keysight PXI Digital IO	No	Common Software Compatibility M5302A PXIe Digital IO Module Driver 1.0.11601.0 Instrument Hardware and Firmware

M5400xxxA Software/Gateware Compatibility and Dependencies

M5400xxxA	Software Package	API Release	FPGA IP Release	License Required	Dependencies
M5400DMOA	Quantum Library API, FPGA IP Catalog	2.1.2	2.1.1	runtime per module	Common Software Compatibility Table
M5400PLSA	Quantum Library API, FPGA IP Catalog	2.1.2	2.1.1	runtime per module	Common Software Compatibility Table

Common Software Compatibility

Vendor	Software/Feature	Release Officially Supported	License Required
Keysight	KS2201A PathWave Test Sync Executive	1.4.15 (2020 Update 1.1)	Yes
	SD1 3.X	3.02.52	No
	IO Libraries Suite	18.2.26526.0 (2021); may work with older versions	No
Python	Python software programming language	3.7.x	No

Instrument Hardware and Firmware

Vendor	Module	Options	May work, but NOT supported	Explicitly NOT supported	Firmware
Keysight	M3202A PXIe Arbitrary Waveform Generator 1 GSa/s, 14 bit, 400 MHz	-K41, -K32 -HV1, -FP1, -Mxx, CLF	M3201A	-CLV	04.02.11 ONLY
	M3102A PXIe Digitizer 500MSa/s, 14 bit, 200 MHz	-K41, -K32 -HV1, -FP1, -Mxx, CLF	-	-CLV	02.02.06 ONLY
	M9019A PXIe Chassis: 18-slot, 3U, 24 GB/s, Gen 3	Chassis driver M9019A 1.7.402.1, see Related Products & Solutions tab for additional information	-	-	Choose 'M9019A Chassis Firmware Version 2019EnhTrig'
	M9018B PXIe Chassis: 18-slot, 3U, 8 GB/s, Gen 2	Chassis driver M9018B 1.7.402.1, see Related Products & Solutions tab for additional information	-	M9018A PXIe Chassis	-
	M9010A PXIe Chassis: 10-slot, 3U, 24 GB/s, Gen 3	Chassis driver M9010A 1.7.402.1, see Related Products & Solutions tab for additional information	-	-	Choose 'M9010A Chassis Firmware Version 2019EnhTrig'