LeCroy

LabMaster 10 Zi High Bandwidth Oscilloscopes

Key Features

- **65 GHz maximum real-time bandwidth**
- **4 Channels all at silicon-based 36 GHz bandwidth**
- **Upgradeable in bandwidth**
- **5.2 ps rise time**
- **160 GS/s sample rate at 65 GHz**
- **1024 Mpts/Ch maximum analysis memory**
- **LabMaster architecture permits up to:**
  - **80 channels at 36 GHz**
  - **40 channels at 65 GHz**
- **ChannelSync™ provides precise synchronization of all channels for high time/phase accuracy (<200 fs_{rms})**
- **30 GHz trigger bandwidth**
- **100 fs_{rms} jitter noise floor**
- **Acquisition front-end and track/hold based on low-noise 8HP Silicon-Germanium (SiGe)**
- **14.1 Gb/s serial pattern trigger, supporting:**
  - **80-bit NRZ pattern trigger**
  - **8b/10b symbolic trigger**
  - **64b/66b symbolic trigger**
  - **PCIe Gen3 protocol trigger**
- **Backward-compatible with LabMaster 9 Zi-A oscilloscopes - protects previous investments**

LabMaster 10 Zi series of oscilloscopes deploys the highest bandwidth (36 GHz) and the highest sample rate (80 GS/s) silicon technologies, and extends them to higher bandwidths, sample rates, and channel counts using Digital Bandwidth Interleave (DBI) and ChannelSync.

4ch all with Silicon-based 36 GHz Bandwidth

The first four channel oscilloscope with >20 GHz of silicon-based bandwidth - more bandwidth and double the number of channels at a price comparable to competitive two channel oscilloscopes. Connect up to twenty additional acquisition modules to achieve up to eighty channels at 36 GHz.

Up to 65 GHz and 160 GS/s

LeCroy's patented Digital Bandwidth Interleaving (DBI) technology allows extension of the silicon-based 36 GHz bandwidth and 80 GS/s sample rate to 65 GHz and 160 GS/s by combining two 36 GHz channels. The 65 GHz real-time bandwidth is nearly twice the bandwidth rating of competitive 32 and 33 GHz oscilloscopes with an equivalent number of channels.

LabMaster ChannelSync

LeCroy's proprietary ChannelSync technology in the LabMaster 10 Zi oscilloscopes permits precise synchronization of up to eighty silicon-based 36 GHz / 80 GS/s channels and up to forty 65 GHz / 160 GS/s DBI channels.

Total Performance Leadership

In addition to bandwidth, sample rate, and channel number advantages, LeCroy provides other clear performance advantages - 5.2 ps rise time, 100 fs_{rms} jitter noise floor, 30 GHz trigger bandwidth, and a 14.1 Gb/s serial trigger.

Application Range

LabMaster 10 Zi oscilloscopes provide superior test capabilities for multi-lane serial data jitter/crosstalk analysis, and 28 GBaud optical coherent modulation analysis. 17+ Gb/s SERDES testing benefits from 36 GHz (or more) bandwidth, fast rise time, and lower noise floor. Four channel 65 GHz systems are ideal for DP-QPSK/16-QAM 56+ GBaud optical coherent modulation analysis. Up to 20 channel 36 GHz capability is ideal for mode and frequency domain multiplexed (MIMO and OFDM) signal analysis. Up to 80 channels is ideal for defense or other research applications.

Advanced new 8HP Silicon-Germanium (SiGe) chipset represents unprecedented technology capability

Silicon-based 36 GHz bandwidth with 80 GS/s on four channels, and extended to 65 GHz with 160 GS/s on two channels using patented LeCroy DBI technology.

The combination of silicon-based 36 GHz bandwidth, DBI, and LabMaster architecture allows unprecedented bandwidth density – more channels, more silicon-based bandwidth, nearly double the silicon-based bandwidth using DBI, and pricing comparable to oscilloscopes with far less capability. LeCroy offers silicon-based 36 GHz four channel oscilloscopes for the price of competitive 32 or 33 GHz two channel oscilloscopes. Or, nearly double the bandwidth (65 GHz) with the same number of channels as competitive oscilloscopes.

LabMaster ChannelSync

LeCroy's proprietary ChannelSync technology in the LabMaster 10 Zi oscilloscopes permits precise synchronization of up to eighty silicon-based 36 GHz / 80 GS/s channels and up to forty 65 GHz / 160 GS/s DBI channels – capability not offered by any other manufacturer.

Advanced Application Capability

More bandwidth for 17 to 28+ Gb/s SERDES validation, cost-effective four channel silicon-based 36 GHz acquisition systems for DP-QPSK optical coherent modulation testing, high-speed 56+ Gb/s or GBaud testing with 65 GHz of real-time bandwidth.

A LabMaster 10 Zi oscilloscope that provides two channels at 65 GHz and four channels at 36 GHz. Two 65 GHz or four 36 GHz inputs provide direct

cabled inputs for high-speed differential signals. Add up to twenty additional acquisition modules for 40 channels at 65 GHz or 80 channels at 36 GHz.

1. Industry leading performance—65 GHz bandwidth (5.2 ps risetime$_{20-80\%}$), 160 GS/s sample rate, up to 80 channels, up to 1024 Mpts of analysis memory
2. Modular—start with four channels and grow your system over time. Spread out your investment as funds permit
3. Wide bandwidth upgrade range (25 - 65 GHz) provides best investment protection
4. ChannelSync architecture utilizes a 10 GHz distributed clock for precise time/phase alignment of all acquisition systems
5. 325 MB/s data transfer rate from the LabMaster to a separate PC with LeCroy Serial Interface Bus (LSIB) option
6. Acquire up to 10 differential signals at one time and display them with the maximum signal fidelity without using expensive external amplifiers or differential probes
7. Server-class multi-core processor combines with X-Stream II streaming architecture for fast acquisition and analysis—33.6 GHz effective CPU clock rate and 24 GB of RAM standard (expandable to 192 GB)
8. Utilize the built-in 15.3" widescreen (16 x 9) high resolution WXGA color touch screen display—or connect your own with up to WQXGA 2560 x 1600 pixel resolution
9. Lowest Jitter Noise Floor (100 fs$_{rms}$) and highly stable timebase over long acquisitions
10. Deepest toolbox with more measurements, more math, more power
11. Wide variety of application packages for serial data, jitter, data storage, and other applications

LABMASTER 10 Zi ARCHITECTURE

Unprecedented bandwidth density – forty times the number of channels and twice the bandwidth

The LabMaster 10 Zi modular oscilloscope architecture separates the oscilloscope signal acquisition function from the display, control and processing functions. The LabMaster Master Control Module (MCM-Zi) contains the display, controls, ChannelSync architecture, and a powerful server-class CPU. LabMaster 10 Zi Acquisition Modules, based on 8 HP SiGe and DBI, providing silicon-based 36 GHz performance with up to 65 GHz on two channels. One LabMaster Master Control Module and one LabMaster 10 Zi Acquisition Module functions as a single, conventional four channel 36 GHz oscilloscope, or as a conventional two channel 65 GHz and four channel 36 GHz oscilloscope. However, by using proprietary ChannelSync technology, up to twenty LabMaster 10 Zi Acquisition Modules can be perfectly synchronized, thus extending the already unique channel density performance by a factor of twenty to achieve up to 80 channels at 36 GHz and 40 channels at 65 GHz.

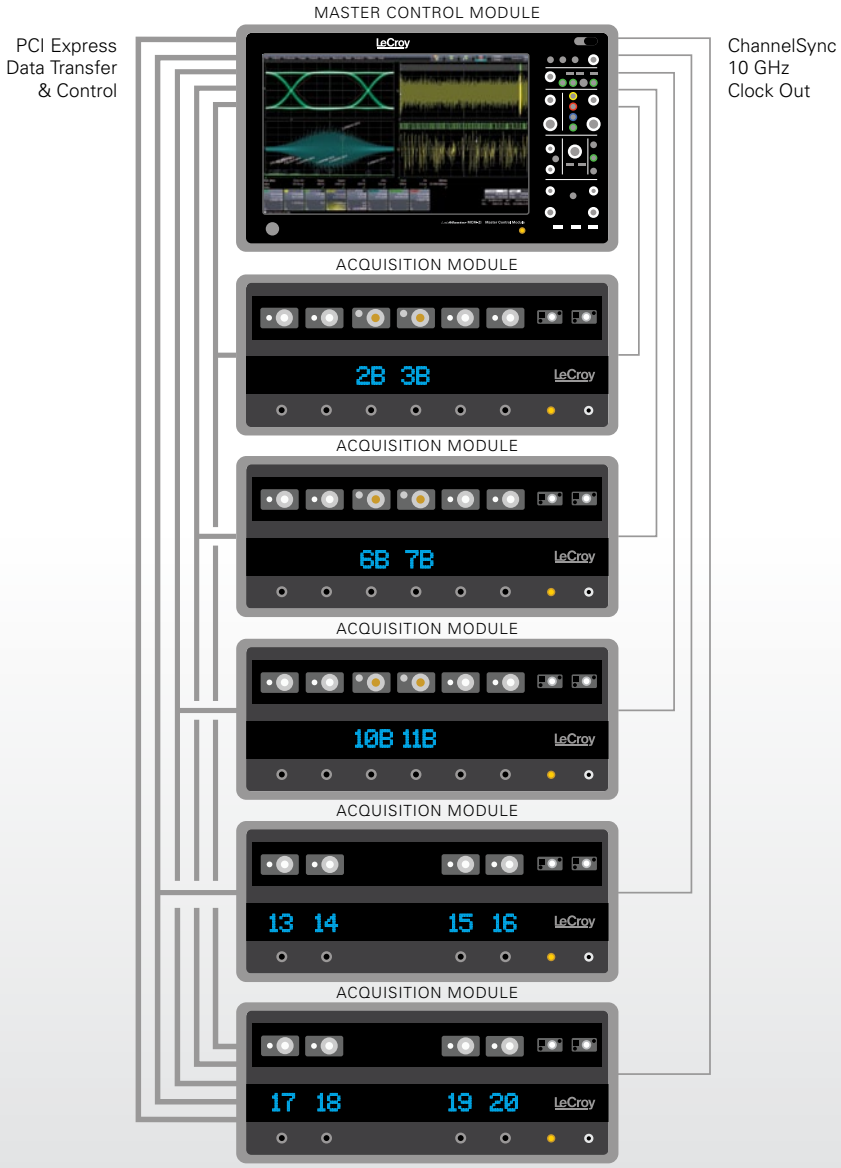
System

The entire system simply and quickly connects together to create a functional, single oscilloscope package, but without the normal input channel or bandwidth limitations—operation is the same as a conventional oscilloscope. All waveforms are viewable on the built-in 15.3" display or on a variety of optional or user-supplied displays (up to 2560 x 1600 resolution). The entire system design speaks to a level of sophistication and integration not seen before in laboratory equipment.

A LabMaster MCM-Zi Master Control Module with five LabMaster 10-65Zi Acquisition Modules contained in a custom-built assembly. This system provides 10 channels at 65 GHz of bandwidth and 20 channels at 36 GHz of bandwidth.

Master Control Module

The LabMaster MCM-Zi Master Control Module provides a built-in display, control panel, CPU, and the ChannelSync 10 GHz distributed clock that is the heartbeat of the system and which provides precise synchronization between all oscilloscope channels. High speed multi-lane PCIe connections are made to the Acquisition Modules for control and data transfer.



Acquisition Module

The 10-xxZi Acquisition Module is tightly integrated to the Master with the ChannelSync 10 GHz distributed clock and a multi-lane PCI Express connection— From 1 to 20 Acquisition Modules can be configured with a single Master. All acquired data is sent to the server-class CPU for processing. Lighted channel indicators intelligently and dynamically indicate the input channel assignments, depending on the operator setup.

Central Processing Unit (CPU)

LeCroy has spared no expense by providing a server-class CPU using Intel Xeon™ X5660 processors (2.8 GHz per core, six cores per processor, and two processors per CPU = 33.6 GHz total effective clock speed). 24 GB of RAM is standard (up to 192 GB optionally available). Coupled with LeCroy's proprietary X-Stream II streaming architecture, the CPU muscles its way through the immense amounts of acquisition data made possible by LabMaster 10 Zi oscilloscopes.

PERFORMANCE EXCELLENCE & INVESTMENT PROTECTION

The LabMaster 10 Zi oscilloscope platform provides a modular, building block approach to minimizing initial investment while at the same time providing future flexibility. The minimum configuration is four channels at 25 GHz with maximum upgrade to 80 channels at 36 GHz and 40 channels at 65 GHz with up to 1024 Mpts/ch of analysis memory.

8HP Silicon-Germanium (SiGe) for High Bandwidth, Low Noise Acquisitions

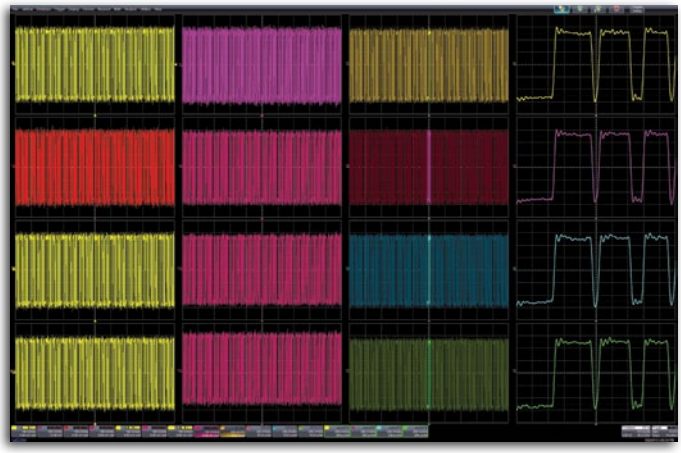
Silicon Germanium (SiGe) is the most widely adopted and deployed semiconductor fabrication process with many years of commercial deployment. 8HP SiGe front-end and track/hold components, with transistor switching speeds of >200 GHz, form the core of the acquisition module, providing 4 channels at 36 GHz in a single acquisition module - more bandwidth and twice the number of channels available in competitive oscilloscopes.

Digital Bandwidth Interleave (DBI) for Upgradeability

As memory and sample rate can be interleaved, so can bandwidth. Using high performance technologies and digital signal processing (DSP), LeCroy goes beyond SiGe limits by providing additional bandwidth on two channels with 7th generation Digital Bandwidth Interleaving (DBI). This approach adds 65 GHz on two channels to the four channel 36 GHz acquisition module. Signal fidelity goes well beyond the limits imposed by chip bandwidth, and real-time acquisition capability expands test boundaries for leading-edge technologies. Signal fidelity nearly equals that of sampling oscilloscopes, but with none of the acquisition limitations.

Modular Design Maximizes Flexibility

Start with one Master Control Module and one Acquisition Module. Upgrade Acquisition Modules to include more memory or more bandwidth. Add Acquisition Modules at any time without returning equipment to the factory for modification or re-calibration. Utilize previously purchased LabMaster 9 Zi-A Acquisition Modules with LabMaster 10 Zi to preserve capital investments. Spread out your capital investment over a longer period of time, and make only the investments you need when you need them.



ChannelSync Provides Precise Synchronization Between All Acquisition Modules

ChannelSync in LabMaster 10 Zi emulates the architecture of a single oscilloscope package, even though as many as 80 different channels are available for use. A single 10 GHz distributed clock signal is generated in the Master Control Module and distributed to all Acquisition Modules. The 10 GHz clock frequency—1000 times faster than the 10 MHz reference clocks commonly used to synchronize lab equipment—ensures precise time/phase synchronization and high timebase accuracy between all acquisition modules. Acquisition Modules are automatically identified to the Master Control Module and a simple and quick ChannelSync calibration corrects for any static skew between all acquisition modules. Additionally, by utilizing a single high bandwidth trigger circuit and signal to trigger all acquisition modules, the effects of trigger jitter uncertainty are eliminated between acquisition modules. The result is up to eighty oscilloscope channels all operating as a single oscilloscope package. For more information on ChannelSync, reference this white paper:

Learn More:
http://lcry.us/vCQTWh

SPECIFICATIONS

Standard

Math Tools

Display up to 8 math function traces (F1–F8). The easy-to-use graphical interface simplifies setup of up to two operations on each function trace, and function traces can be chained together to perform math-on-math.

absolute value
average (summed)
average (continuous)
correlation (two waveforms)
derivative
deskew (resample)
difference (–)
enhanced resolution (to 11 bits vertical)
envelope
exp (base e)
exp (base 10)
fft (power spectrum, magnitude, phase, up to 128 Mpts)
floor
integral
interpolate (cubic, quadratic, sinx/x)
invert (negate)
log (base e)
log (base 10)
product (x)
reciprocal
ratio (/)
rescale (with units)
roof
(sinx)/x
sparse
square
square root
sum (+)
zoom (identity)

Measure Tools

Display any 12 parameters together with statistics, including their average, high, low, and standard deviations. Histicons provide a fast, dynamic view of parameters and wave shape characteristics. Parameter Math allows addition, subtraction, multiplication, or division of two different parameters.

amplitude
area
base
cycles
data
delay
Δ delay
duty cycle
duration
falltime (90–10%, 80–20%, @ level)
frequency
first
last
level @ x
maximum
mean
median
minimum
narrow band phase
narrow band power
number of points
+ overshoot
– overshoot
peak-to-peak
period
risetime (10–90%, 20–80%, @ level)
rms
std. deviation
top
width
median
phase
time @ minimum (min.)
time @ maximum (max.)
Δ time @ level
Δ time @ level from trigger
x @ max.
x @ min.

Standard (cont'd)

Pass/Fail Testing

Simultaneously test multiple parameters against selectable parameter limits or pre-defined masks. Pass or fail conditions can initiate actions including document to local or networked files, e-mail the image of the failure, save waveforms, send a pulse out at the front panel auxiliary BNC output, or (with the GPIB option) send a GPIB SRQ.

Jitter and Timing Analysis

This package provides jitter timing and analysis using time, frequency, and statistical views for common timing parameters, and also includes other useful tools. Includes:

- "Track" graphs of all parameters, no limitation of number
  - Cycle-Cycle Jitter
  - N-Cycle
  - N-Cycle with start selection
  - Frequency @ level
  - Period @ level
  - Half Period
  - Width @ level
  - Time Interval Error @ level
  - Setup
  - Hold
  - Skew
  - Duty Cycle @ level
  - Duty Cycle Error
- Edge @ lv parameter (counts edges)
- Histograms expanded with 19 histogram parameters and up to 2 billion events
- Trend (datalog) of up to 1 million events
- Track graphs of all parameters
- Persistence histogram, persistence trace (mean, range, sigma)

SPECIFICATIONS

Software Options

SDA II Serial Data Analysis Software (LM10Zi-SDAII)

Total Jitter

A complete toolset is provided to measure total jitter. Eye Diagrams with millions of UI are quickly calculated from up to 512 Mpts records, and advanced tools may be used on the Eye Diagram to aid analysis. Complete TIE and Total Jitter (Tj) parameters and analysis functions are provided.

- Time Interval Error (TIE) Measurement Parameter, Histogram, Spectrum and Jitter Track
- Total Jitter (Tj) Measurement Parameter, Histogram, Spectrum
- Eye Diagram Display (sliced)
- Eye Diagram IsoBER (lines of constant Bit Error Rate)
- Eye Diagram Mask Violation Locator
- Eye Diagram Measurement Parameters
  - Eye Height
  - One Level
  - Zero Level
  - Eye Amplitude
  - Eye Width
  - Eye Crossing
  - Avg. Power
  - Extinction Ratio
  - Mask hits
  - Mask out
  - Bit Error Rate
  - Slice Width (setting)
- Q-Fit Tail Representation
- Bathtub Curve
- Cumulative Density Function (CDF)
- PLL Track

Jitter Decompostion Models

Two jitter decomposition methods are provided and simultaneously calculated to provide maximum measurement confidence. Q-Scale, CDF, Bathtub Curve, and all jitter decomposition measurement parameters can be displayed using either method.

- Spectral Method
- NQ-Scale Method

Random Jitter (Rj) and Non-Data Dependent Jitter (Rj+BUj)

- Random Jitter (Rj) Measurement Parameter
- Rj+BUj Histogram
- Rj+BUj Spectrum
- Rj+BUj Track

Deterministic Jitter (Dj)

- Deterministic Jitter (Dj) Measurement Parameter

Data Dependent Jitter (DDj)

- Data Dependent Jitter (DDj) Measurement Parameter
- DDj Histogram
- DDj Plot (by Pattern or N-bit Sequence)

Clock and Clock-Data Timing Jitter Analysis Package (LM10Zi-JITKIT)

Provides convenient setup and four views of jitter (statistical, time, spectrum, and overlaid) for a variety of horizontal, amplitude, and timing parameters. Direct display of jitter measurement values. Supports multiple simultaneous views with fast selection of multiple parameter measurements for fast and easy validation.

Software Options (cont'd)

Eye Doctor Advanced Signal Integrity Tools (LM10Zi-EYEDRII)

Add or remove pre/de-emphasis, perform cable, fixture, or serial data channel embedding/de-embedding, and model receiver equalization on serial data signals.

Cable De-embedding (LM10Zi-CBL-DE-EMBED)

Removes cable effects from your measurements. Simply enter the S-parameters or attenuation data of the cable(s) then all of the functionality of the LabMaster 10 Zi can be utilized with cable effects de-embedded.

8b/10b and 64b/66b Symbol Decode (LM10Zi-8B10B D, LM10Zi-64B66B)

Intuitive, color-coded serial decode with powerful search capability enables captured waveforms to be searched for user-defined sequences of symbols. Multi-lane analysis decodes up to four simultaneously captured lanes.

Serial Data Mask (LM10Zi-SDM)

Create eye diagrams using a comprehensive list of standard eye pattern masks, or create a user-defined mask. Mask violations are clearly marked on the display for easy analysis.

Spectrum Analyzer Mode (LM10Zi-SPECTRUM)

This package provides a new capability to navigate waveforms in the frequency domain using spectrum analyzer type controls.
FFT capability added to include:

- Power averaging
- Power density
- Real and imaginary components
- Frequency domain parameters
- FFT on up to 128 Mpts

Disk Drive Measurements Package (LM10Zi-DDM2)

This package provides disk drive parameter measurements and related mathematical functions for performing disk drive WaveShape Analysis.

- Disk Drive Parameters are as follows:
  - amplitude assymetry
  - local base
  - local baseline separation
  - local maximum
  - local minimum
  - local number
  - local peak-peak
  - local time between events
  - local time between peaks
  - local time between troughs
  - local time at minimum
  - local time at maximum
  - local time peak-trough
  - local time over threshold
  - local time trough-peak
  - local time under threshold
  - narrow band phase
  - narrow band power
  - overwrite
  - pulse width 50
  - pulse width 50 –
  - pulse width 50 +
  - resolution
  - track average amplitude
  - track average amplitude –
  - track average amplitude +
  - auto-correlation s/n
  - non-linear transition shift

SPECIFICATIONS

	25 GHz LabMaster	30 GHz LabMaster	36 GHz LabMaster	50 GHz LabMaster	60 GHz LabMaster	65 GHz LabMaster
Vertical System						
Analog Bandwidth @ 50 Ω (-3 dB) (1.85mm Inputs)	Not Applicable			50 GHz (≥ 10 mV/div)	60 GHz (≥ 10 mV/div)	65 GHz (≥ 10 mV/div)
Analog Bandwidth @ 50 Ω (-3 dB) (2.92mm Inputs)	25 GHz (≥ 10 mV/div)	30 GHz (≥ 10 mV/div)	36 GHz (≥ 10 mV/div)			
Rise Time (10–90%, 50 Ω) (test limit, flatness mode)	16.0 ps	13.3 ps	12.0 ps	8.4 ps	7.5 ps	6.9 ps
Rise Time (20–80%, 50 Ω) (flatness mode)	12.0 ps	10.0 ps	9.0 ps	6.3 ps	5.6 ps	5.2 ps
Input Channels	Up to 80, depending on configuration selected. (Any combination of up to 20 2.92mm input channels)			Up to 40 (at 50, 60, or 65 GHz), Up to 80 (36 GHz), depending on configuration selected.		
Input Impedance	50 Ω+/-2%					
Input Coupling	50 Ω: DC, GND					
Maximum Input Voltage	2.92 mm Inputs: ±2 Vmax@≤100mV/div, 5.5Vrms@>100mV/div			2.92 mm Inputs: ±2 Vmax@≤100mV/div, 5.5Vrms@>100mV/div 1.85 mm Inputs: ±2 Vmax@≤80mV/div		
Vertical Resolution	8 bits; up to 11 bits with enhanced resolution (ERES)					
Sensitivity	2.92mm Inputs: 2 mV–1 V/div, fully variable (2-9.9 mV/div via zoom)			2.92mm Inputs: 2 mV–1 V/div, fully variable (2-9.9 mV/div via zoom) 1.85mm Inputs: 10 mV–80mV/div, fully variable		
Horizontal System						
Timebases	Internal timebase with 10 GHz clock frequency common to all input channels. Single, distributed 10 GHz clock for all channels ensures precise synchronization with timing accuracy between all channels identical to that provided within a single, conventional oscilloscope package					
Time/Division Range	For ≤ 36 GHz Mode: 10 ps/div–64 s/div (Real-Time Mode: 10 ps/div - 64 s/div; RIS mode: 10 ps/div - 10 ns/div, user selectable at ≤ 10ns/div)			For > 36 GHz Mode: Real-Time Mode, 10 ps/div - 640 µs/div, depending on memory length For ≤ 36 GHz Mode: 10 ps/div–64 s/div (Real-Time Mode: 10 ps/div - 64 s/div; RIS mode: 10 ps/div - 10 ns/div, user selectable at ≤ 10ns/div)		
Jitter Noise Floor (TIE, typical)	For Any Acq. Length: 120 fs_{rms}	For Any Acq. Length: 115 fs_{rms}	For Any Acq. Length: 110 fs_{rms}	For Any Acq. Length: 100 fs_{rms}		
Acquisition System						
Single-Shot Sample Rate/Ch	80 GS/s on each channel.			160 GS/s on each channel in > 36 GHz Mode. 80 GS/s on each channel in ≤ 36 GHz Mode.		
Standard Memory (4 Ch / 2 Ch / 1Ch) (Number of Segments)	20 M / 20 M / 20M (2000)			40 M / 40 M / 40M (In ≤ 36 GHz Modes, reference memory specification for 36 GHz LabMaster) (1000)		
Memory Options (4 Ch / 2 Ch / 1Ch) (Number of Segments)	S-32 Option: 32M / 32M / 32M (7,500) M-64 Option: 64M / 64M / 64M (15,000) L-128 Option: 128M / 128M / 128M (15,000) VL-256 Option: 256M / 256M / 256M (15,000) XL-512 Option: 512M / 512M / 512M (15,000)			S-32 Option: 64M / 64M / 64M (3,500) M-64 Option: 128M / 128M / 128M (7,500) L-128 Option: 256M / 256M / 256M (15,000) VL-256 Option: 512M / 512M / 512M (15,000) XL-512 Option: 1024M / 1024M / 1024M (15,000) (In ≤ 36 GHzModes, reference memory specification for 36 GHz LabMasters)		

SPECIFICATIONS

	25 GHz LabMaster	30 GHz LabMaster	36 GHz LabMaster	50 GHz LabMaster	60 GHz LabMaster	65 GHz LabMaster
Triggering System						
Modes	Normal, Auto, Single, and Stop					
Trigger Capability	Edge, Window, State or Edge Qualified, Qualified First, Dropout, Pattern, Glitch, Width, Interval, Timeout, Runt, Slew Rate, Measurement, Cascade (Sequence), 14.1 Gb/s Serial (optional)					
Sources	Any input channel, Aux, Aux/10, Line, or Fast Edge. Slope and level unique to each source (except line trigger)					
Trigger Sensitivity with Edge Trigger (Ch 1–4) 1.85/2.92mm Inputs	3 div @ <30 GHz 1.5 div @ <3 GHz 1.0 div @<200 MHz (for DC coupling, ≥ 10 mV/div, 50 Ω)					
High Speed Serial Protocol Triggering						
Data Rates	(Optional, for signals connected to 10-xxZi-A Acquisition Module Channel 4 input) up to 14.1 Gb/s					
Capability	80 bits NRZ, 8b/10b or 64b/66b symbolic, or PCI Express Generation 3.0 link layer protocol capability					
Color Waveform Display						
Type	On MCM-Zi Master Control Module: Color 15.3" flat panel TFT-Active Matrix LCD with high resolution touch screen					
Resolution	WXGA; 1280 x 768 pixels.					
Number of traces	Display a maximum of 40 traces. Simultaneously display channel, zoom, memory and math traces.					
Processor/CPU						
Type	In MCM-Zi Master Control Module: Intel® Xeon™ X5660 2.8 GHz (or better). There are two processors in each CPU, and each processor has 6 cores for a total of 12 cores and an effective processor speed of 33.6 GHz.					
Processor Memory	24 GB standard. Up to 192 GB optionally available.					
Operating System	Microsoft Windows® 7 Professional Edition (64-bit)					
Power Requirements						
Voltage	10xxZi: 100–240 VAC ±10% at 45-66 Hz; 100-120 VAC ±10% at 380-420 Hz; Automatic AC Voltage Selection, Installation Category II MCM-Zi Master Control Module: 100–240 VAC ±10% at 45-66 Hz; Automatic AC Voltage Selection, Installation Category II					
Max. Power Consumption	10-xxZi Acquisition Module - 1300 W / 1300 VA. MCM-Zi Master Control Module - 450 W / 450 VA. Each Module and the CPU has a separate power cord.			10-xxZi Acquisition Module - 1350 W / 1350 VA. MCM-Zi Master Control Module - 450 W / 450 VA. Each Module and the CPU has a separate power cord.		
Physical Dimensions						
Dimensions (HWD)	MCM-Zi Master Control Module - 10.9" x 18.2" x 15.6" (277 x 462 x 396 mm), 10-xxZi Acquisition Module - 8.0" x 18.2" x 26" (202 x 462 x 660 mm)					
Weight	MCM-Zi Master Control Module - 47 lbs. (21.4 kg), 10-xxZi Acquisition Module - 53 lbs. (24 kg)			MCM-Zi Master Control Module - 47 lbs. (21.4 kg), 10-xxZi Acquisition Module - 58 lbs. (26.4 kg)		

LeCroy
1-800-5-LeCroy
www.lecroy.com

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