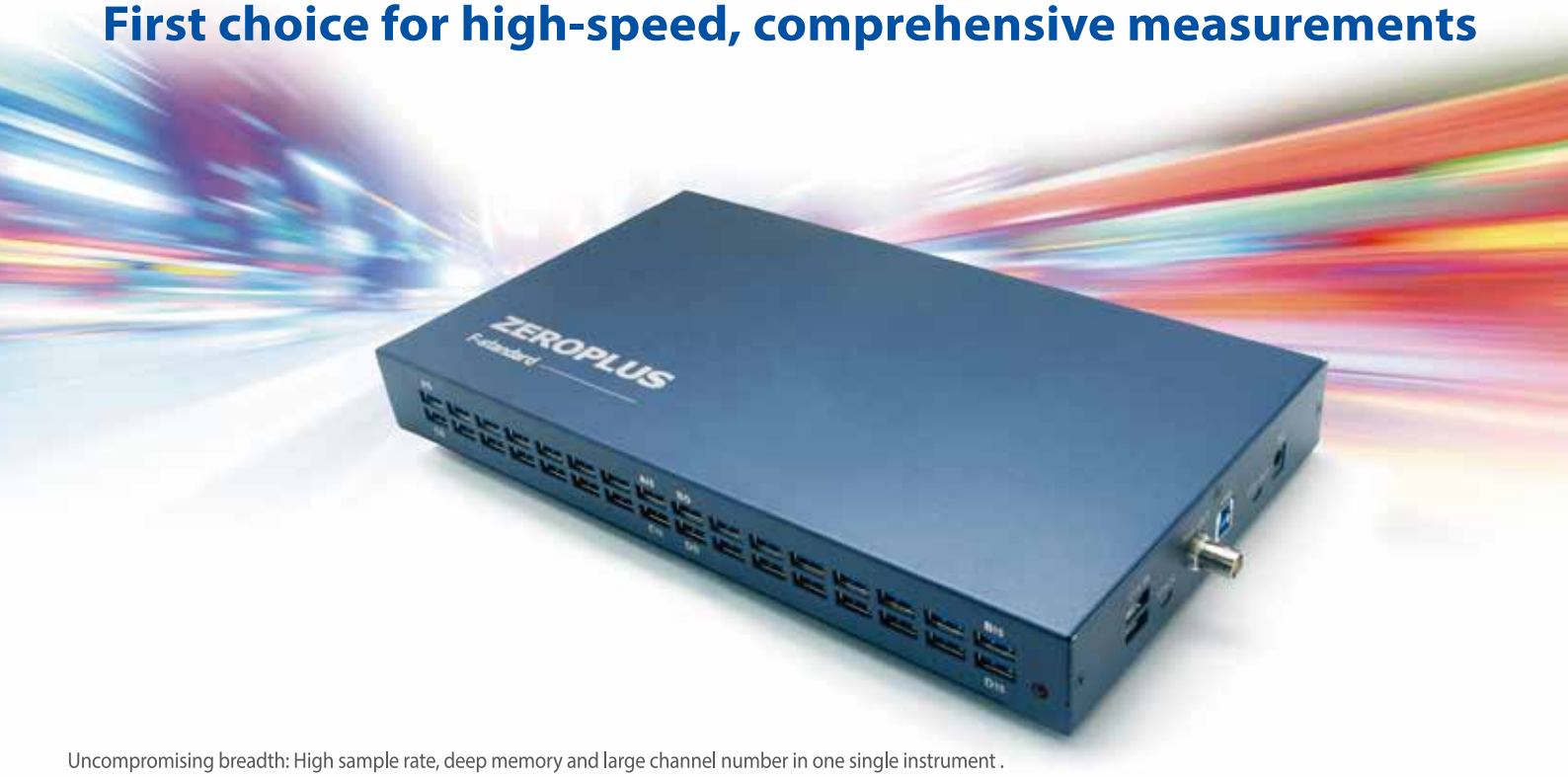
ZEROPLUS

High Quality Professional Instruments

New F-series LA

LAP-F1 Logic Analyzer
First choice for high-speed, comprehensive measurements

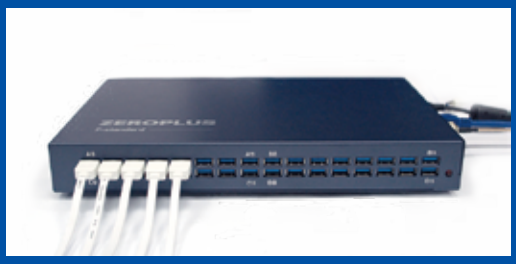


Uncompromising breadth: High sample rate, deep memory and large channel number in one single instrument .

Xilinx high-performance FPGA chip and exclusive active probes enhance sampling accuracy and stability.

Extensive protocol library and straight-forward software for efficient debugging.

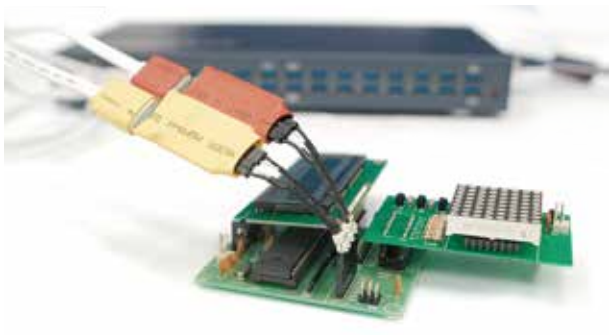
Optimized for complex circuits with high-frequency signals.



- Sample rate (State mode): Up to 200 MHz (Dual-edge)
- Sample rate (Timing mode): Up to 1 GHz
- Acquisition channels: 40 or 64
- Memory per channel: 4Mb, 8Mb, 16Mb, 32Mb or 64Mb
- 6 protocol triggers (hardware): I2C, I2S, SPI, SVID, UART, CAN 2.0B
- More than110 built-in protocol decoders
- DSO connection

- eMMC 5.1 / SD 3.0 LA mode, protocol decoder and trigger (Optional)
- Long-time records: Transfer via USB 3.0 to hard drive to sample for hours or days (Optional)
- Channel Folding: Disable channels to concentrate memory on the active ones (Optional)

Active Probe features



- Good impedance matching, reduced crosstalk and noise and reinforced ground enhance the measurement quality, accuracy and stability of high-speed signals
- Support DUT bandwidths of up to 200 MHz
- 4 types: *Standard, Low voltage, Negative logic and eMMC 5.1/SD 3.0 support

** 40/ 64 General Purpose probes and 4 eMMC probes are included in base purchase*

Product Specifications

Item		Description
Operating System		Windows 8.1 (Recommended) / Windows 7 32-bit or 64-bit
Transmission		USB 3.0 (2.0 compatible)
Channels		40 or 64
Sample Rate	Internal (Timing) - Max.	1 GHz
	External (State) - Max.	200 MHz (Dual-edge)
Memory	Memory/Channel	See details in table below
Trigger	Trigger Channels	32 (the channels are divided in 2 groups; OR triggering between the 1st group (32 ch.) and the 2nd (8/32 ch.) is possible)
	Trigger Events	Pattern / Edge / Pulse-width / Interval (Time)
	Trigger Delay	YES
	Trigger Sequence Levels	256
	Trigger Pass	1- 65,535
	Trigger Voltage	4 simultaneous levels - 1 for each of the 4 ports
	Auxiliary Cursors	250
	Hardware Triggers	I2C, I2S, SPI, SVID, UART, CAN 2.0B
	eMMC5.1/SD3.0 Trigger	4 ch. can be triggered/sampled/decoded at 2 GHz in the Standard version; see Special Functions below for full support
Software Functions	Languages	English and Chinese (Traditional/Simplified)
	Zooming and panning	2 cursor modes
	Waveform & UI Customization	Modify the appearance of channels, menus, traces, windows etc
	State List & Waveform view	Present the samples as a list of 1s and 0s or as a waveform
	DSO Connection	Connect to and import signals from DSOs
	Files Comparison	Compare 2 files to quickly see where and how they differ
	Navigator	Quickly navigate to distant parts of the waveform
	Memory View	See what the memory looks like; what is read/written to which address
	Packet List	Breakdown of all packets in list form
	Statistic	Table view of number of periods, periods that satisfy conditions etc
	Real-time Signal Activity	Live view of probe activity
	Protocol decoders	More than **110** free built-in protocol decoders
Phase Errors		< 3ns
Power		AC (IN): 100 - 240V 50/60Hz; DC (OUT): 9V/5.55A
Dimensions		322 x 180 x 38 (mm)
Certifications		CE & FCC
Special Functions	Channel Folding (Option)	LAP-F1 offers he ability to concentrate the total memory on a limited number of channels. Example using the 64 ch. model with 4 Mb/ch: Enable only 32 ch. to use 8 Mb/ch, enable only 16 ch. to use 16 Mb/ch., enable only 8 ch. to use 32 Mb/ch. etc. Please inquire for more details on the specific models.
	eMMC5.1/SD3.0 (Option)	Get special eMMC-probes and unlock 32 ch. for 2 GHz sampling to fully trigger and decode all the signals of eMMC5.1/SD3.0. As eMMC only has 11 signals the remaining signals can be used for other high-speed acquisitions.
	Long-Time Record (Option)	This function is used to stream samples directly to disk. Up to 64 channels can be streamed at an average rate of 300 MB/s using USB 3.0. The long-time record function can be used to acquire signals from 7 hrs and up to a month depending on the sampling setup.

Available Models

Model Name	LAP-F1404M	LAP-F1408M	LAP-F14016M	LAP-F14032M	LAP-F14064M	LAP-F1644M	LAP-F1648M	LAP-F16416M	LAP-F16432M	LAP-F16464M
Channels	40					64				
Memory	4Mb	8Mb	16Mb	32Mb	64Mb	4Mb	8Mb	16Mb	32Mb	64Mb

Probe Specifications

Model Name	P100ST (General Purpose)	P120LV (Low-voltage)	P120NE (Neg. logic)	P200EM (eMMC)
Included in base purchase	Yes	Optional	Optional	4 probes incl. in base purchase
Signal type	Single-ended bus	Single-ended bus	Single-ended bus	Single-ended bus
Channels (Max.)	64	64	64	32
Input Impedance / Capacitance	530 kohm ±10% 8.2pF ±2pF	190 kohm ±10% 4.3pF ±2pF	190 kohm ±10% 4.3pF ±2pF	190 kohm ±10% 4.3pF ±2pF
DUT Bandwidth (Max.)	100 MHz	120 MHz	120 MHz	200 MHz
Transmission rate (Max.)	100 Mbit/s	120 Mbit/s	120 Mbit/s	400 Mbit/s
Trigger Voltage	User-defined	User-defined	User-defined	User-defined
Bus Voltage	V_{IH}: 2V to 5V	V_{IH}: 0.6V to 5V	V_{IH}: 0.3V to 5V or V_{IH}: -0.2V to -1.5V	V_{IH}: 0.6V to 5V
Input signal level	-5V to 5V	0V to 5V	-5V to 5V	0V to 5V
Input DC voltage (Max.)	±5V	±10V	±10V	±10V

Built-in protocols
- Automotive
  - CAN 2.08
  - DSI Bus
  - FlexRay 2.1A
  - LIN 2.1
  - MVB
  - WTB
- PC System
  - FWH
  - GPIB
  - Low Pin Count
  - LPC-SERIRQ
  - LPT
  - PCI
  - PECI
  - PS/2
  - SVID
  - USB 1.1
  - USB 2.0
- Memory
  - Compact Flash 4.1
  - I2C(EEPROM 24L)
  - I2C(EEPROM 24LCS61/24LCS62)
  - MICROWIRE(EEPROM 93C)
  - SD2.0/SDIO
  - SAMSUNG K9(NAND Flash)
  - SPI Compatible(Atmel Memory)
  - UNI/O
- Digital Audio
  - AC97
  - DSA Interface
  - HD Audio
  - HDMI CEC
  - I2S
  - MIDA
  - PCM
  - PSB Interface
  - S/PDIF
  - STBus
- IC Interface
  - 1-WIRE
  - 1-Wire(Advanced)
  - 3-WIRE
  - BDM
  - HPI
  - I2C
  - JTAG 2.0
  - MCU-51 DECODE
  - MICROWIRE
  - SLE4442
  - SSI Interface
  - ST7669
  - SPI
  - SPI PLUS
  - Serial Wire Debug(SWD)
  - UART(RS-232C/422/485)
- Basic Logic Application
  - ARITHMETICAL LOGIC
  - DIGITAL LOGIC
  - JK FLIP-FLOP
  - UP DOWN COUNTER
- Infrared rays
  - IRDA
  - NEC PD6122
  - Philips RC-5
  - Philips RC-6
  - PT2262/PT2272
- Optoelectronics
  - 7-SEGMENT LED
  - CCIR656
  - CMOS IMAGE
  - DALI Interface
  - DM114/DM115
  - DMX512
  - LCD12864
  - LCD1602
  - LG4572
  - S2Cwire/AS2Cwire
  - SCCB
- Power
  - BMS
  - HDQ
  - PMBus 1.1
  - SDQ
  - SMBus 2.0
- Wireless
  - Differential Manchester
  - DigRF
  - ISO7816 UART
  - KEELOQ Code Hopping
  - MANCHESTER
  - MII
  - MILLER
  - MIL-STD-1553
  - MODIFIED MILLER
  - SIGNIA 6210
  - SWP
  - WIEGAND
  - WWV/WWVH/WWVB
- Other
  - DS1302
  - DS18B20
  - HART
  - KNX
  - ModBus
  - MODIFIED SPI
  - OPENTHERM 2.2
  - PROFIBUS
  - SHT11
  - YK-5
- and more
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