

TL4234B

Acute TravelLogic

Logic Analyzer & Protocol Analyzer

- PC-based
- USB 3.0 Interface
- 34 Channels
- 2 GHz Timing / 250MHz State Analysis
- 8Gb Memory (Max.)
- Data logger saved to hard disk drive
- Analog Inputs (2) for Protocol Analyzer
- Stacks with Acute or another DSO to form as an MSO



123 x 76 x 21 mm³

ロジアナモード (キャプチャ停止後 波形とプロトコルデコード結果を表示し、タイミングとプロトコル解析ができるモード)

- Decode : 10BASE-T1S¹, BiS-C, CAN 2.0B/CAN FD, DP_Aux¹, DMX512, EDID, eMMC 4.5, eSPI, I²C, I²S, MII, MIPI DSI LP, MIPI I3C 1.1.1, NAND Flash, NEC IR, Profibus, SD 3.0 (SDIO 2.0), Serial Flash, SPI, SVID², SWD, UART (RS232), USB1.1, USB PD 3... (100種類超)
- Trigger I : 10BASE-T1S¹, BiSS-C, CAN2.0B/CAN FD, DP_Aux¹, I²C, I²S, MIPI I3C 1.1.1, SPI, UART, USB PD 3
- Trigger II : DALI, LPC, MDIO, Mini/Micro LED, MIPI RFFE 3, MIPI SPMI 2, Modbus, PMBus, Profibus, SMBus, SVI2, USB1.1,
- Trigger III : eMMC 4.5, eSPI, MII, RGMII, RMII, NAND Flash, SD 3.0 (SDIO 2.0), Serial Flash, SVID³

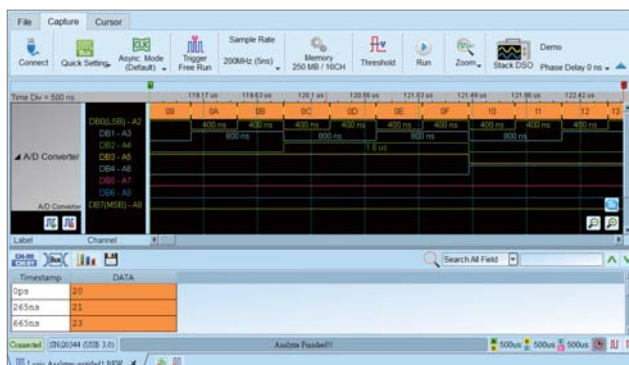
プロアナモード (以下の一つのバスについてキャプチャしながらプロトコルデコード結果を順次表示していくモード)

- Protocol Analyzer I : 10BASE-T1S¹, BiSS-C, CAN2.0B/CAN FD, DP_Aux¹, I²C, I²S, Lin2.2, MIPI I3C 1.1, SPI, UART(RS232), USB PD 3
- Protocol Analyzer II : DALI, MDIO, MIPI RFFE 3, Modbus, PMBus, Profibus, SMBus, USB1.1
- Protocol Analyzer III : eSPI, MII, RGMII, RMII, SVID³

機種種の比較 (メモリ容量、ロジアナモードのプロトコルトリガ、プロアナモードのプロトコルサポート等に違いがあります)

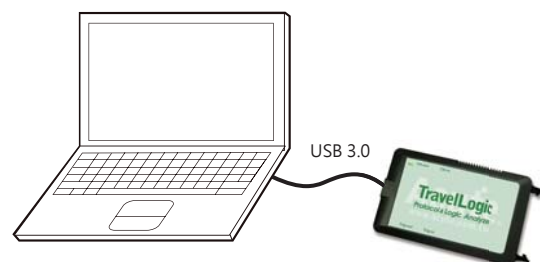
Model	Channels	Sample Rate	Memory	Bus Trigger	Protocol Analyzer
TL4134E	34	2GHz	4Gb	I	I
TL4134B	34	2GHz	4Gb	I, II	I, II
TL4234B	34	2GHz	8Gb	I, II, III	I, II, III

ロジアナモードのGUI例



System Requirements

- USB 3.0 port
- Win 10, Win 11 (64 bit)
- PC RAM 16GB (recommended) or 8GB at least



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<https://www.acute.com.tw>



Protocol Analyzer: プロアナモードは一つのバスをキャプチャしながらデコード結果を順次表示します。

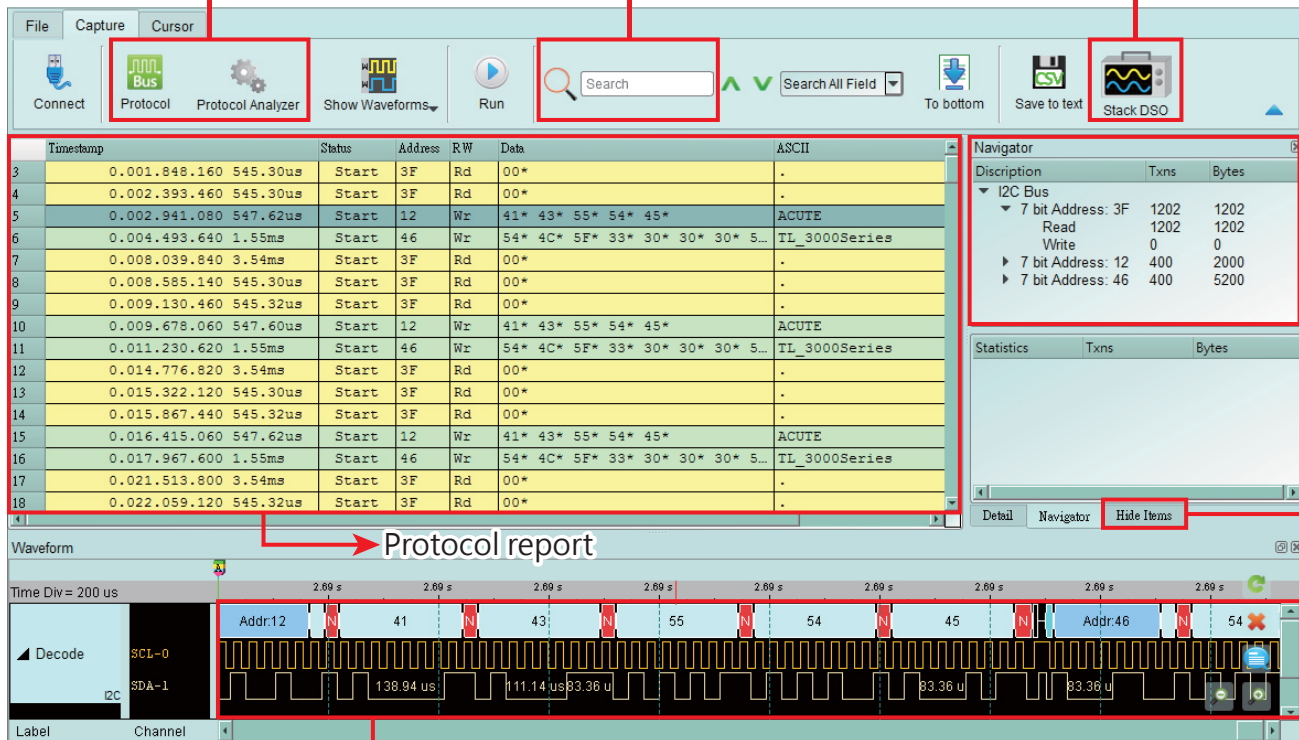
It is hardware decoding, may log protocol data very long time if without waveforms.

Application timing: Preliminary protocol debug.

Support multiple protocols with different operating modes

Real-time data search

Stack with a DSO as an MSO in logic analyzer mode



Show waveforms with bus decodes

(RUN前に指定することでこのモードでもキャプチャ停止後に波形表示ができる)



Protocol Analyzer

Show real-time protocol data

Application timing: massive protocol data with some idles in between



Protocol Logger

Like data logger, save massive data into SSD hard drive

Application timing: massive protocol data



Protocol Monitor

Like dash cameras, record protocol data by the device's memory only

Application timing: trigger event only happens in very long time

Packing List :



TL4134E



TL4134B / TL4234B



8.5cm Lead Cable
TL4234B only



18.5cm
Lead Cable



USB 3.0 cable



Grippers
Stack cable



Handbag

TL4000 series

Model		TL4134E	TL4134B	TL4234B	
Power	Power Source	USB bus-power (+5V)			
	Static Power Consumption	0.8W			
	Max Power Consumption	3W			
Hardware Interface		USB 3.0			
Timing Analysis (Asynchronous, Max. Sample Rate)		2GHz			
State Clock Rate (Synchronous, External Clock)		250MHz			
Storage		Conventional Timing, Transitional Timing			
Channels (Data / CLK / Analog / GND)		32 / 2 / 2 / 4			
Total Memory		4 Gb	8 Gb		
Timing vs. Channels vs. Memory	Timing Analysis	Available channels (Conventional / Transitional Timing)		Memory per channel	
	2GHz	(8/7)-512Mb		(8/7) - 1Gb	
	1GHz	(16/14)-256Mb		(16/14) - 512Mb	
	500MHz	(32/28)-128Mb		(32/28) - 256Mb	
	250MHz	(32/32)-128Mb		(32/32) - 256Mb	
Channel to channel skew		< 1ns			
Threshold	Group	4 (ch0~7, ch8~15 & clk0, ch16~23, ch24~31 & clk1)			
	Range	+5V ~ -5V			
	Resolution	50mV			
	Accuracy	±100mV + 5%*Vth			
Input Voltage	Non-Destructive	±30V DC, 12Vpp AC			
	Operation	+10V ~ -10V			
	Sensitivity	0.25Vpp @50MHz, 0.5Vpp @150MHz, 0.8Vpp @250MHz			
Impedance	Data channels	200KΩ//<7pF			
	Analog channels	20KΩ//<3pF			
Analog Inputs (2) (Protocol Analyzer)	Maximum (Non-destructive)	-0.5V ~ +8V DC+AC peak			
	Operation	0V ~ 4V			
	Resolution	12 bits			
	Sampling Rate	250KHz			
Temperature	Operating / Storage	5°C~40°C (41°F~104°F) / -10°C~65°C (14°F~149°F)			
I/O port	Trig-In	TTL 3.3V level (Rising / Falling)			
	Trigger pulse approval	> 8 ns			
	Trig-Out	TTL 3.3V, Pulse Width			
	Ref. Clock Input	10MHz, Vpp=3.3 to 5V			
	Ref. Clock Output	10MHz, TTL 3.3V			
	Connector type	MCX jack / female			
Trigger	Resolution	500ps			
	Channels	32			
	States	16			
	Events	16			
	Pre / Post	Yes			
	Pass Counter	Yes (0~1048575 times)			
	Types	Channel, Pattern, Single / Multi Level, Width, Time-out, Setup / Hold Timing Violation, External, Manual			
	Bus I	10BASE-T1S ¹ , BiSS-C, CAN2.0B/CAN FD, DP_Aux ¹ , HID over I ² C, I ² C, I ² S, LIN2.2, MIPI I3C 1.1.1, SENT, SPI, UART (RS232), USB PD 3			
	Bus II	---	DALI, LPC, MDIO, Mini/Micro LED, MIPI RFFE 3, MIPI SPMI 2, Modbus, PMBus, Profibus, SMBus, SVI2, USB1.1		
	Bus III	---	eMMC 4.5, eSPI, MII , NAND Flash, RGMII , RMII , SD 3.0 (SDIO 2.0), Serial Flash (SPI NAND), SVID ³		
Protocol Analyzer/ Protocol Logger / Protocol Monitor	I	10BASE-T1S ¹ , BiSS-C, CAN2.0B/CAN FD, DP_Aux ¹ , HID over I ² C, I ² C, I2S, LIN2.2, MIPI I3C 1.1.1, SPI, UART (RS232), USB PD 3			
	II	---	DALI, MDIO, MIPI RFFE 3, Modbus, PMBus, Profibus, SMBus, USB1.1		
	III	---	eSPI, MII , RGMII , RMII , SVID ³		
Software Features	Zoom In / Out	Yes			
	Language	English / Simplified Chinese / Traditional Chinese			
	Waveform Height	Adjustable			
	Zoom / Report Window	Yes			
	Quick Cursor-positioning	Yes			
	Import Label(s)	Yes			
	Quick Bus Decode Setup	Yes			
	Trigger / Auxiliary cursors	1/25			
	Data Logger	Saved to Hard Disk Drive			
	Bus Decode	1-Wire, 3-Wire, 7-Segment, 8b10b decoding, 10BASE-T1S ¹ , A/D Mux Flash, AccMeter, ADC, APML, AVSBus, BiSS-C, BSD, BT1120, CAN 2.0B/FD, Close Caption, CODEC_SSI, DALI, DMX512, DP_Aux ¹ , EDID, eMMC 4.5, eSPI, FlexRay, HD Audio, HDLC, HDQ, HID over I ² C, HTSensor, I ² C EEPROM, I ² C, I ² S, I80, IDE, IO-Link, IrDA, ISELED, ITU-R BT656 (CCIR656), J1850, JTAG, JVC IR, LCD1602, LED_Ctrl, LIN 2.2, Line Decoding, Line Encoding, Lissajous, LPC, LPT, Math, M-Bus, MCTP over I ² C/ I3C/ SMBus ⁴ , MDDI, MDIO, MHL CBUS, Microchip SWI, Microwire, MII, Mini/Micro LED, MIPI CSI LP, MIPI DSI LP, MIPI I3C 1.1.1, MIPI RFFE 3, MIPI SoundWire 1.2, MIPI SPMI 2, Modbus, NAND Flash, NEC IR, OA3p, OATC6, PCM, PDM, PECL 3.0, PMBus, Profibus, PS/2, PWM, QEI, QI, QSPI, RC-5, RC-6, RGB Interface, RGMII, RMII, S/PDIF, SD3.0(SDIO 2.0), SENT, Serial Flash, Serial IRQ, SGPIO, Smart Card, SMBus (SBS, SPD), SMI, SPI, SPI-NAND, SSI, ST7669, SVI2, SVID ² , SWD, SWIM, SWP, TDM, UART (RS232), ULPI, UNI/O, USB 1.1, USB4/TBT3 SB Channel, USB PD 3, Wiegand, ...			
		Line Decoding	Biphase Mark, Differential-Manchester, Manchester (Thomas, IEEE802.3), Miller, Modified Miller, NRZI, ...		
		Line Encoding	AMI(Standard, B8ZS, HDB3), Biphase Mark, CMI, Differential-Manchester, Manchester (Thomas, IEEE802.4), MLT-3, Miller, Modified Miller, NRZI, Pseudoternary, ...		
	Dimension	L x W x H (mm ³)	123 x 76 x 21 (mm ³)		
	Lead Cable	(Data / CLK / Analog / GND)	A 40-pin lead cable (32 / 2 / 2 / 4)		
Grippers		40			

¹ Optional 10BASE-T1S / DP_Aux adapter needed.

² Upon request ONLY by users who have signed CNDA with Intel, SVID decode supported by all TL4000 models.

³ Upon request ONLY by users who have signed CNDA with Intel, SVID trigger & PA supported by TL4234B ONLY.

⁴ MCTP over I²C/I3C/SMBus decode supports analysis of Ethernet / MCTP Control / NC-SI / PLDM packets.