

# Acute ポータブルMSO

## ひとつのプロービングで動作する ロジアナ, プロアナ, 簡易デジタルオシロ機能



こんなツールがほしかった。ロジアナでデバッグ中に同じ信号のアナログ波形や電圧を確認したい場合、別途アナログ用プローブを追加接続することなく観測できる、ロジアナ+簡易DSO、およびプロトコルアナライザがAcuteのMSO2xxxシリーズです。このツールにはリアルタイムに順次解析して表示する専用プロトコルアナライザモードと、ロジックアナライザ(+簡易DSO)モードがあります。ロジアナモードではデジタルは**最高2GHz**、簡易DSO機能併用時には**最高200MHz**でサンプリング可能です。波形表示に加えてソフトウェア処理で**100種類以上のバスプロトコルデコード**を全機種でサポートします。最上位機種はCPUベンダの特殊なプロトコルにも対応。USB3.0でWindowsPCに接続してバスパワーで動作する軽量で強力なデジタル機器開発用ツールです。ハードウェア、ソフトウェア開発チームで一人1台を常に使って開発効率と品質向上に役立ちます。FAEの現地対応、リモートワーク用にも適しています。ぜひ立野電脳(株)へお気軽にお問い合わせください。

**ロジアナモード** (キャプチャ停止後波形表示とバスデコードをソフトで行い、タイミングとプロトコル解析ができるモード)

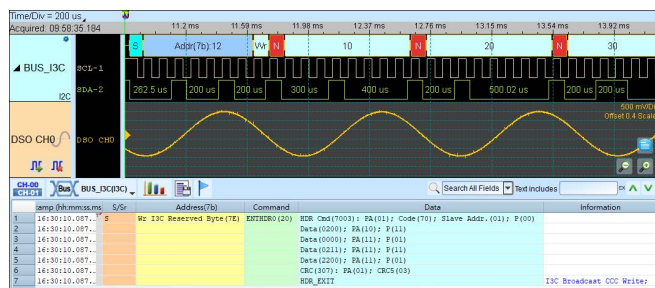
- Protocol Decode : 10BASE-T1S<sup>1</sup>, BiSS-C, CAN2.0B/CAN FD, DP\_Aux<sup>1</sup>, eSPI, I<sup>2</sup>C, I<sup>2</sup>S, MII, MIPI I3C 1.1.1, Serial Flash, SPI, SVI3<sup>2</sup>, SVID<sup>3</sup>, UART(RS232), USB PD3.1, USB1.1,.. (全機種100種類超)
- Protocol Trigger I : I<sup>2</sup>C, MIPI I3C 1.1.1, SPI, UART(RS232)
- Protocol Trigger II : 10BASE-T1S<sup>1</sup>, BiSS-C, CAN 2.0B/CAN FD, DP\_Aux<sup>1</sup>, I<sup>2</sup>S, LIN2.2, SENT, USB PD 3
- Protocol Trigger III : DALI, MDIO, MIPI RFFE 3, MIPI SPMI 2, Modbus, PMBus, SMBus, USB1.1, ...
- Protocol Trigger IV : eMMC 4.5, eSPI, MII, RGMII, RMII, SD 2.0 (SDIO 2.0), Serial Flash(SPI NAND), SVI3<sup>2</sup>, SVID<sup>3</sup>

- **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バスデコード結果を順次表示していくモード)

- Protocol Analyzer I : I<sup>2</sup>C, MIPI I<sup>3</sup>C 1.1.1, SPI, UART(RS232)
- Protocol Analyzer II : 10BASE-T1S<sup>1</sup>, BiSS-C, CAN 2.0B/CAN FD, DP\_Aux<sup>1</sup>, HID over I<sup>2</sup>C, I<sup>2</sup>S, LIN2.2, USB PD 3.1
- Protocol Analyzer III : DALI, MDIO, MIPI RFFE 3, Modbus, PMBus, Profibus, PWM, SMBus, USB1.1
- Protocol Analyzer IV : eSPI, MII, RGMII, RMII, SVI3<sup>2</sup>, SVID<sup>3</sup>

機種型番 (ch数、メモリ容量、プロアナモードでサポートするプロトコル、ロジアナモードのプロトコルトリガ対応等に違いがあります。)

| Model    | Channels | Sample Rate | Memory | Protocol Trigger/<br>Protocol Analyzer | Power Sequence<br>Channels |
|----------|----------|-------------|--------|----------------------------------------|----------------------------|
| MSO2008E | 8        | 2 GHz       | 2 Gb   | I                                      | 8                          |
| MSO2116E | 16       | 2 GHz       | 4 Gb   | I, II                                  | 16                         |
| MSO2116B | 16       | 2 GHz       | 4 Gb   | I, II, III                             | 16                         |
| MSO2216B | 16       | 2 GHz       | 8 Gb   | I, II, III, IV                         | 16(128/ 8 sets cascaded)   |



左図：ロジアナモードでのI3Cキャプチャ例  
トリガを設定してキャプチャを行い、波形表示とプロトコルデコード結果を表示。同時に別chで他のアナログ波形もキャプチャした。

下図：プロアナモードでI3Cキャプチャ中の例  
キャプチャしながら即時デコードして順次表示すると共に統計情報も更新する

| NetworkMiner |                              |     |               |       |         |      |       |                     | Network               |      |       |
|--------------|------------------------------|-----|---------------|-------|---------|------|-------|---------------------|-----------------------|------|-------|
| Timestamp    | (h:m:s.ms.us.ms.us)          | S/R | Address (h:m) | CO(h) | Data(h) | Stop | Error | Information         | Description           | Time | Bytes |
| 1            |                              |     |               |       |         |      |       | *** Capture Started | ICMP Echo Request: 7E | 8284 | 17648 |
| 2            | 18:00:11.224.994.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 3            | 18:00:11.225.035.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 4            | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      | TEL   |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 5            | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 6            | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 7            | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 8            | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      | TEL   |                     | Read 0                | 8284 | 17648 |
| 9            | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 10           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 11           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 12           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 13           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 14           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      | TEL   |                     | Read 0                | 8284 | 17648 |
| 15           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 16           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 17           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 18           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 19           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 20           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 21           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 22           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 23           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 24           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 25           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 26           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 27           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 28           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 29           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 30           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 31           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 32           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 33           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 34           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 35           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 36           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 37           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 38           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 39           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 40           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 41           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 42           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 43           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 44           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 45           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 46           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 47           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 48           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 49           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 50           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 51           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 52           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 53           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 54           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 55           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 56           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 57           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 58           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 59           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 60           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 61           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 62           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 63           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 64           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 65           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 66           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 67           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 68           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 69           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 70           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 71           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 72           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 73           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 74           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 75           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 76           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 77           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 78           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 79           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 80           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 81           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 82           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 83           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 84           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 85           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 86           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 87           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 88           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 89           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 90           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 91           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 92           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 93           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 94           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 95           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 96           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 97           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 98           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 99           | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 100          | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 101          | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 102          | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 103          | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 104          | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 105          | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 106          | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 107          | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 108          | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 109          | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 110          | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Read 0                | 8284 | 17648 |
| 111          | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | Write 8284            | 8284 | 17648 |
| 112          | 18:00:11.225.040.0.0 (h:m:s) | 2   | W             | 192   | 0x0     |      |       |                     | ICMP Echo Request: 7E | 8284 | 17648 |
| 113          |                              |     |               |       |         |      |       |                     |                       |      |       |



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**URL** [http : //www.dsp-tdi.com/](http://www.dsp-tdi.com/)



**Protocol Analyzer:** プロアナモードは1個のバスについてデコードしながらキャプチャ/順次表示します。

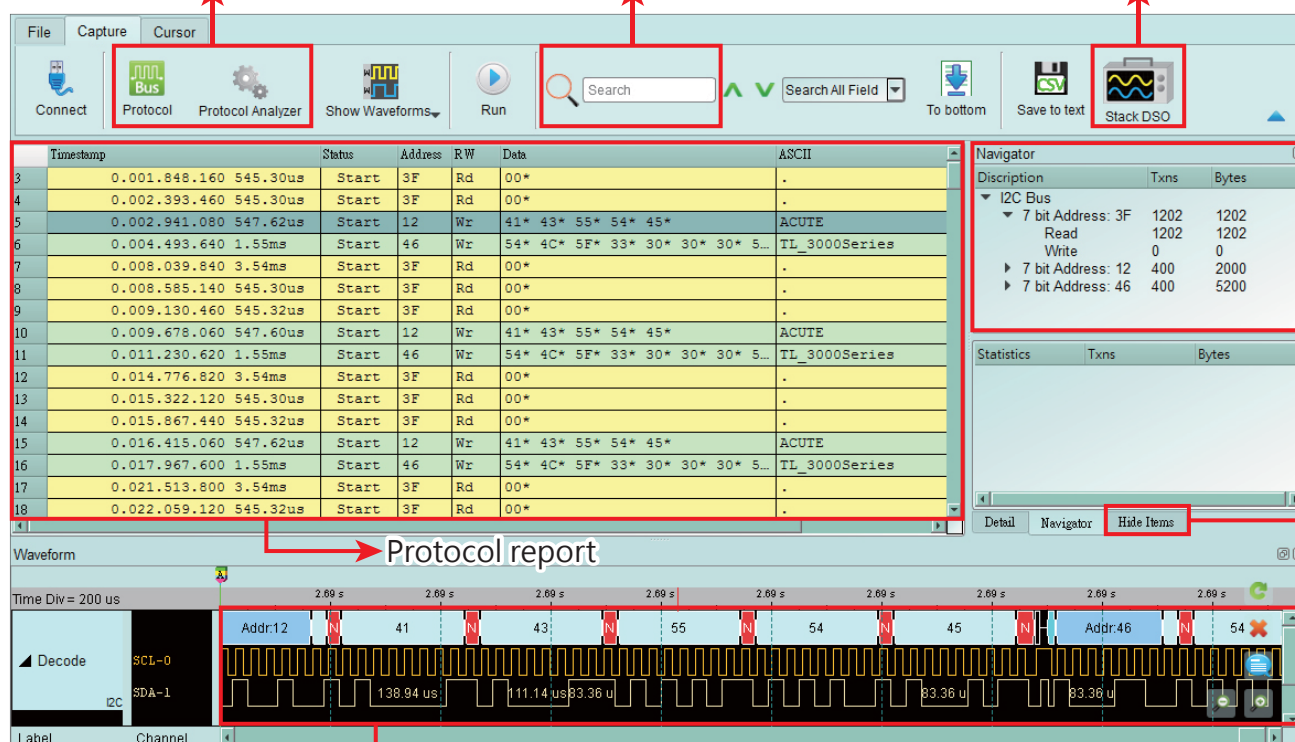
It is hardware decoding, may log protocol data very long time if without waveforms.

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



Real-time data statistics

Hide items for easy view

Show waveforms with bus decodes (プロアナモードでも制限付きで波形も取れる)



### 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 :



MSO2008E  
MSO2116E

MSO2116B  
MSO2216B



8.5cm Lead Cable  
MSO2216B only



18.5cm  
Lead Cable



USB 3.0 cable



Grippers

Stack cable

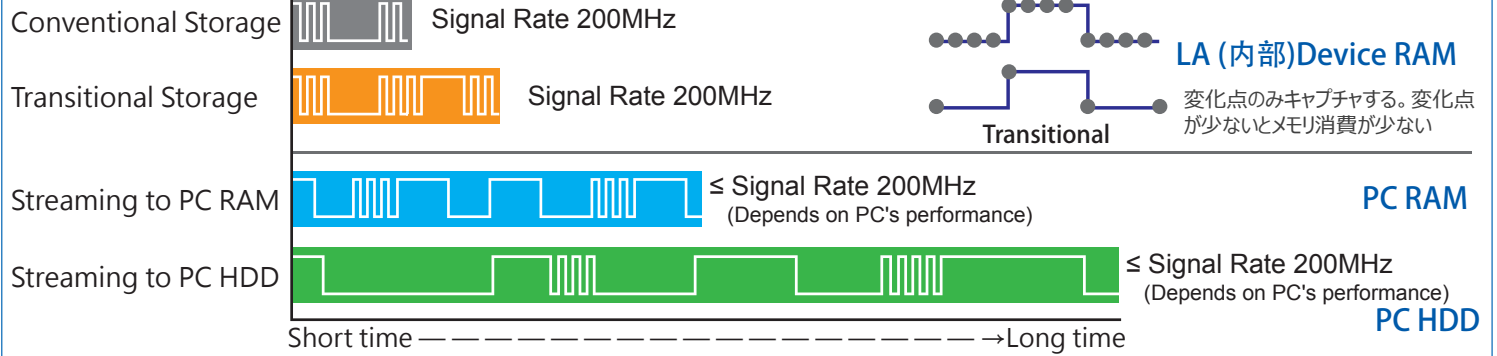


Handbag

**Logic Analyzer:** ロジアナモードは複数のバスを同時キャプチャ可能です。キャプチャ停止後、波形表示とソフト処理によるプロトコル（100種類）のデコード表示ができます。バスデータによるトリガも利用できます。MSO2000シリーズは入力をA/D変換してキャプチャしてキャプチャ停止後アナログ波形として表示する機能をロジアナモードで併用できます。低速な通信の波形やデジタル系電源シーケンスの確認等に便利です。（併用時は 最大200MS/s, アナログ帯域40MHz）

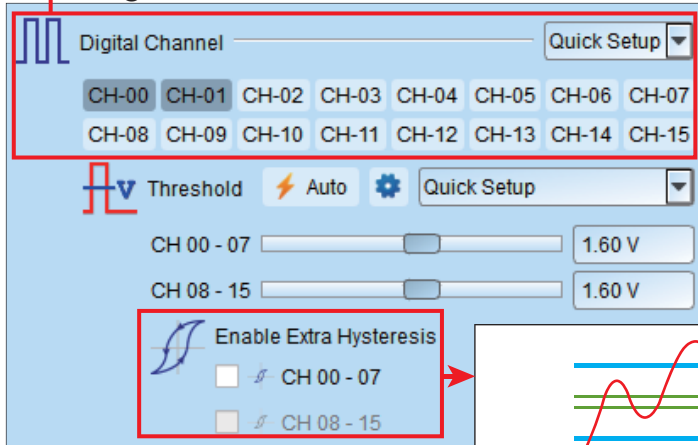
**Provides multiple storage modes, users could select to have long time recording or precision acquisition.**

## LA Storage mode

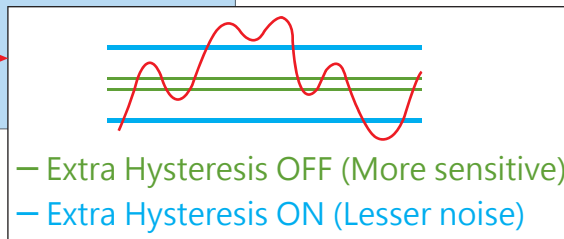
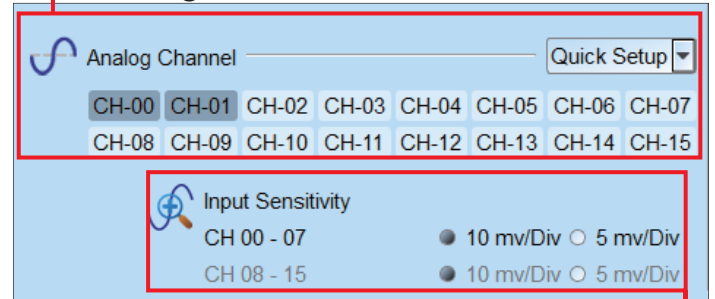


**Each channel supports both digital and/or analog waveforms measurements, voltage resolution can be changed between 2 levels for all channels at the same time.**

➡ Digital waveform

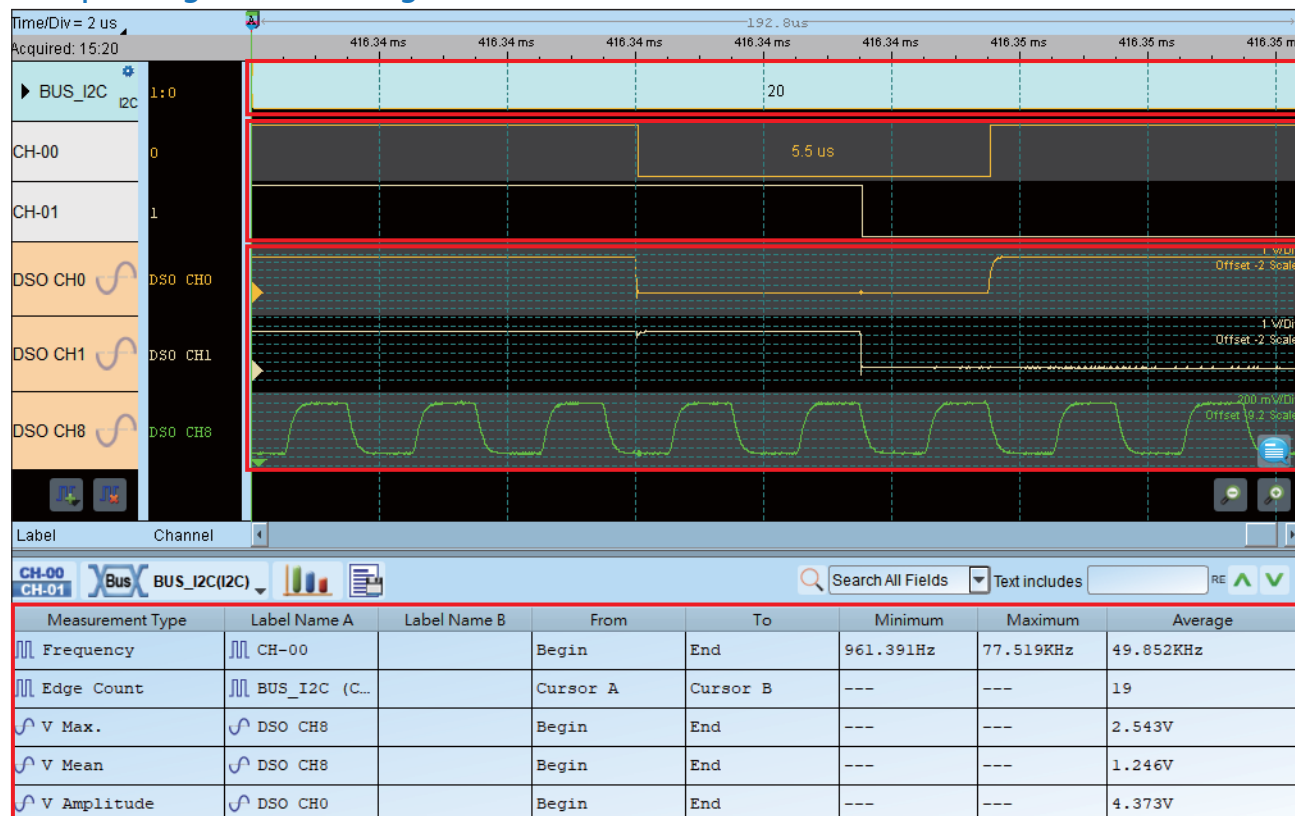


➡ Analog waveform



Vertical Range: ±20V → ±10V  
 Resolution: 10mV → 5mV

**Compare digital and analog waveforms at the same channel for statistics.**



➡ Bus Decode (I2Cデコード)

➡ Digital waveforms

この例ではCH00とCH01のデジタルとアナログ波形両方表示

➡ Analog waveforms

Report Window

左例は統計情報表示。  
 表示を切り替えてここにプロトコルアナライザのようにデコード結果も表示できる。つまりロジアナモードではプロトコル解析+波形解析の両方ができる



# MSO series

| Model                                        |                                                               | MSO2008E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | MSO2116E                                                                                                      | MSO2116B                                                                                                             | MSO2216B                                                             |
|----------------------------------------------|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| Power                                        | Power Source                                                  | USB bus-power (+5V)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Static Power Consumption                                      | 0.9W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Max Power Consumption                                         | <3.9W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <6W                                                                                                           |                                                                                                                      |                                                                      |
| Hardware Interface                           |                                                               | USB 3.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                               |                                                                                                                      |                                                                      |
| Channels (Data / Clock / Ground)             |                                                               | 8/1/23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 16/1/23                                                                                                       |                                                                                                                      |                                                                      |
| Total Memory                                 |                                                               | 2 Gb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4 Gb                                                                                                          | 8 Gb                                                                                                                 |                                                                      |
| ロジアナモード<br>簡易DSO機能                           | Group                                                         | I (CH0~7)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | I, II (CH0~7, CH8~15)                                                                                         |                                                                                                                      |                                                                      |
|                                              | Sampling Rate (by group)                                      | 200MHz/1CH, 100MHz/2CH,<br>50MHz/4CH, 25MHz/8CH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 200MHz/2CH, 100MHz/4CH, 50MHz/8CH, 25MHz/16CH                                                                 |                                                                                                                      |                                                                      |
| Analog Inputs                                | Bandwidth                                                     | 40MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | ADC Bits                                                      | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                               |                                                                                                                      |                                                                      |
| Digital Inputs                               | Timing Analysis (Asynchronous)                                | Available channels (Conventional / Transitional Timing) - Memory per channel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | 2 GHz                                                         | (8/7) - 256Mb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | (8/7) - 512Mb                                                                                                 |                                                                                                                      | (8/7) - 1Gb                                                          |
|                                              | 1 GHz                                                         | (8/8) - 256Mb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | (16/14) - 256Mb                                                                                               |                                                                                                                      | (16/14) - 512Mb                                                      |
|                                              | 500 MHz                                                       | (8/8) - 256Mb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | (16/16) - 256Mb                                                                                               |                                                                                                                      | (16/16) - 512Mb                                                      |
|                                              | 250 MHz and lower                                             | (8/8) - 256Mb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | (16/16) - 256Mb                                                                                               |                                                                                                                      | (16/16) - 512Mb                                                      |
|                                              | State Clock Rate <small>(Synchronous, External Clock)</small> | 200MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                               |                                                                                                                      |                                                                      |
| Data Storage                                 |                                                               | Conventional Timing, Transitional Timing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                               |                                                                                                                      |                                                                      |
| Channel to channel skew                      |                                                               | < 1ns                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                               |                                                                                                                      |                                                                      |
| Threshold                                    | Group                                                         | I (CH0~7 & CKI)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | I, II (CH0~7 & CKI, CH8~15)                                                                                   |                                                                                                                      |                                                                      |
|                                              | Range                                                         | +20V ~ -20V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Resolution                                                    | 50mV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Accuracy                                                      | ±100mV + 5%*Vth                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                               |                                                                                                                      |                                                                      |
| Input Voltage                                | Non-Destructive                                               | over +/-42V DC & AC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Operation (Standard / High Resolution)                        | -20V ~ +20V / -10V ~ +10V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Sensitivity (1Vpp)                                            | 200MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Extra Hysteresis (On/Off)                                     | 560mV / 80mV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                               |                                                                                                                      |                                                                      |
| Impedance                                    |                                                               | 1MΩ//2pF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                               |                                                                                                                      |                                                                      |
| Temperature                                  | Operating / Storage                                           | 5°C~45°C (41°F~113°F) / -10°C~65°C (14°F~149°F)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                               |                                                                                                                      |                                                                      |
| I/O port                                     | Trig-In                                                       | TTL 3.3V (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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                               |                                                                                                                      |                                                                      |
| ロジアナモード<br>で使えるトリガ                           | Resolution                                                    | 500ps                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Channels                                                      | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 16                                                                                                            |                                                                                                                      |                                                                      |
|                                              | States                                                        | 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Events                                                        | 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Pre / Post                                                    | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Pass Counter                                                  | Yes (0~1048575 times)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Digital                                                       | Channel, Pattern, Single / Multi Level, Width, Time-out, Setup/Hold Timing Violation, External, Manual                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Analog                                                        | Rising / Falling, Activity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Protocol Trigger I                                            | I²C, MIPI I3C 1.1.1, SPI, UART (RS232)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Protocol Trigger II                                           | ---                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 10BASE-T1S <sup>1</sup> , BiSS-C, CAN2.0B/FD, DP_Aux <sup>1</sup> , HID over I²C, I²S, LIN2.2, SENT, USB PD 3 |                                                                                                                      | DALI, LPC, MDIO, Mini/Micro LED, MIPI RFFE 3, MIPI SPMI 2,           |
|                                              | Protocol Trigger III                                          | ---                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                               |                                                                                                                      | Modbus, PMBus, Profibus, SMBus, SVI2, USB1.1                         |
|                                              | Protocol Trigger IV                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ---                                                                                                           | eMMC 4.5, eSPI, MII, RGMII, RMII, SVI3 <sup>2</sup> , SVID <sup>3</sup> , SD 2.0 (SDIO 2.0), Serial Flash (SPI NAND) |                                                                      |
| プロアナモード<br>でサポートする<br>プロトコル<br>Analyzer      | I                                                             | I²C, MIPI I3C 1.1.1, SPI, UART (RS232)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | II                                                            | ---                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 10BASE-T1S <sup>1</sup> , BiSS-C, CAN2.0B/CAN FD, DP_Aux <sup>1</sup> , HID over I²C, I²S, LIN2.2, USB PD 3.1 |                                                                                                                      |                                                                      |
|                                              | III                                                           | ---                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                               |                                                                                                                      | DALI, MDIO, MIPI RFFE 3, Modbus, PMBus, Profibus, PWM, SMBus, USB1.1 |
|                                              | IV                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | ---                                                                                                           | eSPI, MII, RGMII, RMII, SVI3 <sup>2</sup> , SVID <sup>3</sup>                                                        |                                                                      |
| 全機種で<br>サポート<br>している<br>Software<br>Features | Power Sequence                                                | Input setup .CSV file for Timing Sequence and H/W Strap check.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Measurement                                                   | Digital or Analog waveforms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Zoom / Report Window                                          | YES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Note editor                                                   | Edit notes on Waveform Window                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Quick Bus Decode Setup                                        | YES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Trigger / Auxiliary cursors                                   | 1/25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Data Logger                                                   | Saved to Hard Disk Drive                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                               |                                                                                                                      |                                                                      |
|                                              | Protocol Decode                                               | 1-Wire, 3-Wire, 7-Segment, 10BASE-T1S <sup>1</sup> , A/D Mux Flash, AccMeter, ADC, APML, AVSBus, BiSS-C, BSD, BT1120, CAN2.0B/FD, Close Caption, CODEC_SSI, DALI, DDC(EDID), DMX512, DP_Aux <sup>1</sup> , EDID, eMMC 4.5, eSPI, FlexRay, HDAudio, HDLC, HDQ, HID over I²C, HID over SPI, I²C EEPROM, I²C, I²S, I80, IO-Link, IrDA, ISELED, ITU-R BT.656 (CCIR656), J1850, JTAG, JVC IR, LCD1602, LED_Ctrl, LIN 2.2, Line Decoding, Line Encoding, Lissajous, LPC, LPT, Math, M-Bus, MCTP over I2C/I3C/SMBus <sup>4</sup> , MDDI, MDIO, MHL CBUS, Microchip SWI, Microwire, 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, NEC IR, OA3p, OATC6, PCM, PECL 3.0, PMBus, Profibus, PS/2, PWM, QEI, QI, QSPI, RC-5, RC-6, RT_SWI, S/PDIF, SD 2.0(SDIO2.0), SENT, Serial Flash, Serial IRQ, SGPIO, Smart Card, SMBus (SBS, SPD), SMI, SPI, SPI-NAND, SSI, ST7669, SVI2, SVI3 <sup>2</sup> , SVID <sup>3</sup> , 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, IEEE802.3), MLT-3, Miller, Modified Miller, NRZI, Pseudoternary, ...                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                               |                                                                                                                      |                                                                      |
| Dimension                                    | L x W x H (mm <sup>3</sup> )                                  | 123 x 76 x 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                               |                                                                                                                      |                                                                      |
| Lead Cable                                   | Data / CLK / NC / GND                                         | 8 / 1 / 8 / 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 16 / 1 / 0 / 23                                                                                               |                                                                                                                      |                                                                      |
| Grippers                                     |                                                               | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 20                                                                                                            |                                                                                                                      |                                                                      |
| Stack cable                                  | MCX to MCX (30cm)                                             | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2                                                                                                             |                                                                                                                      |                                                                      |

¹ Optional 10BASE-T1S / DP\_AUX adapter needed. ² Upon request by user who is approved by AMD. SVI3 decode, trigger and protocol analyzer are supported ONLY by MSO2216B.

³ Upon request by user who has signed CNDA with Intel. SVID decode, trigger and protocol analyzer are supported ONLY by MSO2216B.

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