adviceLUNA for ARM Family

advice LUNA

Main Features

◆Support ARM7, 9, 11, and Cortex series just changing software on the main unit

◆Hot plug in/out using JTAG interface

◆Support power supply voltage that ranges from 1.5V to 3.3V

◆Provide large trace (up to 4GByte) volume

◆Speedy download via JTAG

◆New technology, SMT (System Macro Trace), is introduced

◆Support multi-core debugging

◆Support external flash writing

◆Easy connection either via Ethernet or USB

◆Debugger software, microVIEW-PLUS, is bundled

ETM trace (ETM probe)

Up to 4GByte-worth execution PC and data trace can be captured using on-chip debug resource. You can easily identify the data you need by capturing a large volume of trace sample.

[Trace clock]	200MHz (dual edge) (in case of meeting our conditions for connection)
[Trace volume]	2GByte/4GByte

ETM event (ETM probe)

Event function is available using ETM resource. Trigger conditions can be set and used as a trigger for various measurements. The same resource can also be allocated for hardware break. (You need to set up hardware break setting.)

[Event point] [Event counter]	Up to 2 points (4 points for Cortex-M3) Can be set up as trigger and sequential trigger condition (depends on ETM resource)
[Sequential] [Trigger conditions]	3 levels (depends on ETM resource) AND/OR Address: match/within the range Data: match/don't care (in unit of bit) Access status: FT/R/W/RW

External flash programming

Flash memory definition files consisting of their makers, model names, and other necessary information are available to realize flash writing. In addition, it is possible to generate a new definition file that matches your environment.

Host interface

Either 10/100BASE-TX or USB can be used as a host interface with adviceLUNA.

[Supported OS] [I/F]	Windows Vista / XP / 7 10BASE-T/100BASE-TX Auto-MDIX, USB (High-Speed)

Specifications

Item	Description
Supported MPUs	【SLX600】ARM7TDMI, ARM7TDMI-S, ARM7EJ-S, ARM720T, ARM9TDMI, ARM9E-S, ARM920T, ARM922T, ARM926EJ-S, ARM940T, ARM946E-S, ARM966E-S, ARM968E-S, ARM1136J(F)-S, ARM1156T2F-S, ARM1176JZ(F)-S 【SLX603】ARM Cortex-M1, ARM Cortex-M3 【SLX604】ARM Cortex-R4 【SLX605】ARM Cortex-A8 【SLX620】ARM11 MP Core 【SLX621】ARM Cortex-A9 MPCore [ALTERA] EXCALIBUR [Freescale] i.MX1, i.MX21, i.MX31 [NEC Electronics] MP201, EMMA Mobile 1 [RealVision] JIGEN-301 [STMicroelectronics] Nomadik8810/8815 series, STM32 family [Telechips] TCC79xx, TCC83xx, TCC86xx, TCC87xx, TC89xx, TCC91xx, TCC92xx [TI] OMAP161x, OMAP2420, OMAPV2230 DaVinci processor TMS320DM355, TMS320DM644x, TMS320DM646x [TOSHIBA] TMPM320, TMPM330 [Zoran] Quatro 4050, 4200, 4230, 4305, 4310
Power supply voltage	1.5V to 3.3V ±5%
Operating clock	Can support up to the maximum clock frequency (Vary from MPU to MPU)
JTAG clock	Selectable from 1kHz to 100MHz by unit of 1kHz (Auto selection is available)
Endian	Little endian/Big endian
User system I/F (for user system side)	[JTAG I/F(20pin, 2.54mm pitch)] Right angle, HIF3F-20PA-2.54DS/HIF3F-20PA-2.54DS(71) (Hirose Electric) Straight, HIF3F-20PA-2.54DSA/HIF3F-20PA-2.54DSA(71) (Hirose Electric) [JTAG I/F(14pin, 2.54mm pitch)] Right angle, HIF3F-14PA-2.54DS/HIF3F-14PA-2.54DS(71) (Hirose Electric) Straight HIF3F-14PA-2.54DSA/HIF3F-14PA-2.54DSA(71) (Hirose Electric) [ETM I/F(38pin, 0.64mm pitch)] Straight type, gold plated, GND lead 1.4mm, 2-767004-2/2-5767004-2(AMP) Straight type, palladium nickel, GND lead 2.74mm, 767054-1/5767054-1(AMP) Straight type, palladium nickel, GND lead 3.51mm, 767061-1/5767061-1(AMP)
Break	[Software break] up to 1,024 [Countable break]1 [Temporary break]1(On-chip resource of MPU is used) [ETM hardware break] It depends on ETM resources [OCD break]ARM7, ARM9:up to 2/ARM11:up to 8/Cortex-R4:up to 16 /Cortex-M3:up to 6/Cortex-M:up to 4/Cortex-A8:up to 8
Flash writing	Support flash memory that employs JEDEC method (compliant) and INTEL method (equivalent) standard commands (block erase/write)
External break trigger	Break by external trigger input (1 point) Trigger output when a break is detected(1 point)
Supported compilers	ARM C/C++ compiler (SDT/ADS/RVCT) Green Hills C/C++ compiler GNU C/C++ compiler GAIO Technology C/C++ compiler IAR C/C++ compiler
Supported Linux *	MontaVista Linux Lineo uLinux Elite Linux-2.6.9-arm1, Linux-2.6.12-arm1 kernel.org linux-2.6.11, linux-2.6.16, linux-2.6.18, linux-2.6.26

*Linux support library (DA301) is necessary.

Debugger: microVIEW-PLUS

Our debugger, microVIEW-PLUS, is compatible with advicePLUS, advicePOCKET, advicePRO, and adviceLUNA. Once you get used to it, you can debug with ease when changing MCUs or developing with different MCUs simultaneously.
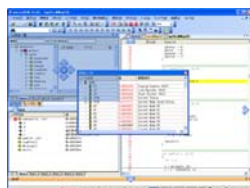
microVIEW PLUS

System Macro Trace (System macro trace probe)

With System Marco Trace, you can capture in/out of functions data, attributes, return values, OS switching information, debug messages, and input/output data. Up to 4GByte-worth of such data can be retrieved. Large volume of data visualizes execution history of functions and tasks as well as execution time. You can funnel down the information you need, making it possible to take data longer. This function also helps you detect a quite rare problem by searching and checking macroscopically.
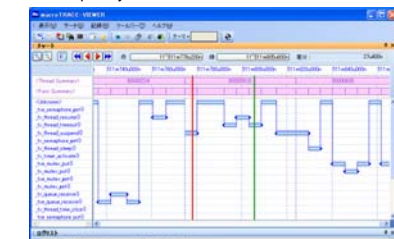
Product configuration

Item	Description	JTAG model	Trace model ETM trace	Trace model System Macro Trace	System Macro Trace model	Double trace model
adviceLUNA main unit	**Main unit for each**					
	◆JTAG model (AP510) Debug functions including execution control, memory/register reference are supported	OK	-	-	-	-
	◆Trace model (AP511) In addition to JTAG model functions, it provides advanced debug features including trace and event using EMT or SMT functions. (Either ETM or SMT can be selectable)	-	OK	OK	-	-
	◆System Macro Trace model (AP512) Supports SMT features.	-	-	-	OK	-
	◆Double trace model (AP514) In addition to JTAG model functions, it provides advanced debug features including trace and event using EMT or SMT functions. (Both ETM and SMT are available)	-	-	-	-	OK
	Others					
	◆USB cable 1.5-meter cable to connect your PC with adviceLUNA ◆AC adapter (AQ700) Dedicated AC adapter for adviceLUNA	OK	OK	OK	OK	OK
JTAG probe	JTAG cable for JTAG connection ◆20pin cable (HLX600JP)	OK	-	Optional	-	Optional
ETM probe	ETM cable for ETM connection ◆38pin mictor connector (HLX600TP)	-	OK	-	-	OK
Debugger software	Software that is necessary to set up adviceLUNA debug environment (A license registration is required) ◆Debugger, microVIEW-PLUS ◆APClient (set-up tool) ◆License Administrator ◆Manuals	OK	OK	OK	-	OK
System Macro Trace probe	SMT cable for System Macro Trace connection ◆microSD card interface compliant cable (AQ720) ◆10pin packet compliant cable (AQ721+AQ730) ◆Bus compliant cable (AQ721+AQ731)	-	-	OK	OK	OK
System Macro Trace software	Software that is necessary to set up adviceLUNA and use SMT functions. (A license registration is required) ◆macroTRACE-VIEWER ◆APClient (set-up tool) ◆License Administrator ◆Manuals NOTE) API library is necessary.	-	-	OK	OK	OK
PGRelief connection tool library	Library to link the PGRelief (static analysis tool) (TLA200)	-	-	OK	OK	OK
External trigger cable	Cable that is necessary to use external trigger functions	Optional [AE820]				
Synchronous cable	Cable used to realize adviceLUNA synchronous debugging	Optional [AE821]				

JTAG model
This model provides basic JTAG debugging operation. Using AP510 and HLX600JP, basic debug functions including execution control, memory access, and register access are available.

Trace model
Either ETM or System Macro Trace can be utilized by switching probes. (Both trace functions cannot be used simultaneously.)
Adopting AP511 and HLX600TP, various functions such as event, program trace, and data trace are available. The ETM working mode supports Normal and Multiplexed mode. System Macro Trace is available by using AP511 and System Macro Trace probe (AQ720, AQ721+AQ730 and AQ721+AQ731).(micro SD interface, 10pin packet and external bus is supported.) Additionally, basic debugging via JTAG communication is possible using HLX600JP. AP511/2G provides 2GByte, and AP511/4G gives you 4GByte.

System Macro Trace model
Utilizing AP512 and System Macro Trace probe (AQ720, AQ721+AQ730, and AQ721+AQ731), System Macro Trace is supported. (micro SD interface, 10pin packet and external bus is supported.) The trace volume for AP512/2G is 2GByte, and AP512/4G is 4GByte.

Double trace model
Both ETM and System Macro Trace are simultaneously available. With AP514 and HLX600TP, ETM-resource based trace such as event, program trace, and data trace can be utilized. ETM working mode supports Normal and Multiplexed mode. Utilizing AP514 and System Macro Trace probe (AQ720, AQ721+AQ730, and AQ721+AQ731), System Marco Trace is supported. (micro SD interface, 10pin packet and external bus is supported.) AP511/2G provides 2GByte, and AP511/4G gives you 4GByte.
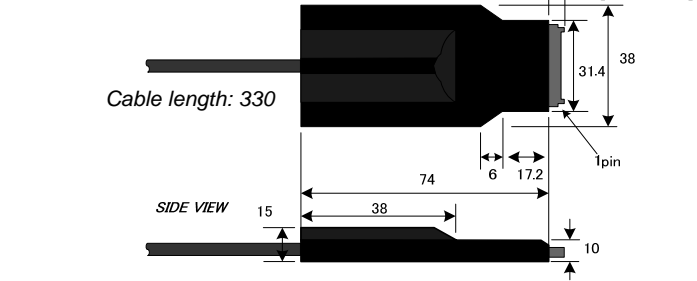
JTAG probe (HLX600JP)

Probe size

TOP VIEW
[unit: mm]
30
180±10
16
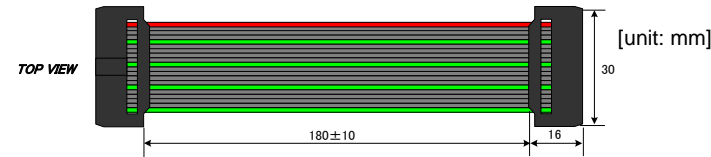
ETM probe (HLX600TP)

Probe size

TOP VIEW
[unit: mm]
7
38
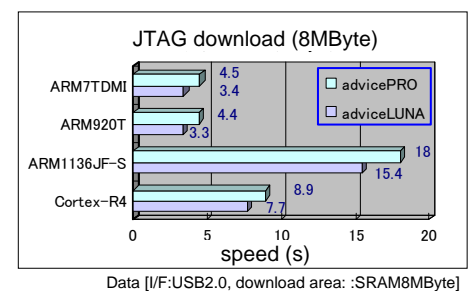31.4
Cable length: 330
74
6 17.2
1pin
SIDE VIEW
15
38
10

Performance comparison

JTAG communication

Improvement in JTAG performance
Better download speed performance is achieved on adviceLUNA.

JTAG download (8MByte)
ARM7TDMI 4.5 / 3.4
ARM920T 4.4 / 3.3
ARM1136JF-S 18 / 15.4
Cortex-R4 8.9 / 7.7
□ advicePRO
□ adviceLUNA
speed (s)
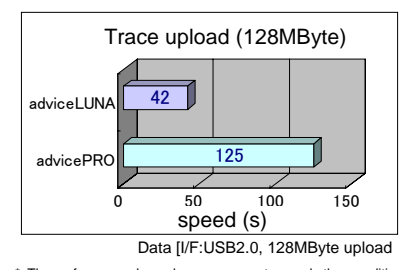Data [I/F:USB2.0, download area: :SRAM8MByte]

Trace analysis

Large volume trace memory
Up to 4GByte trace memory is now available on adviceLUNA.

Trace memory volume
256MByte
4GByte
advicePRO   adviceLUNA
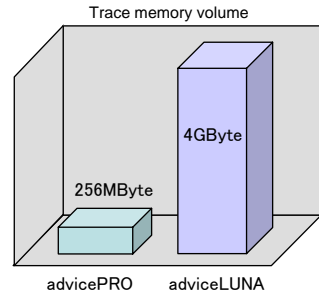
Speedy trace memory upload
3 times faster speed-up is achieved after improving trace data upload. (∗)

Trace upload (128MByte)
adviceLUNA 42
advicePRO 125
speed (s)
Data [I/F:USB2.0, 128MByte upload
*: The performance depends on a user system and other conditions.

Yokogawa Digital Computer Corporation

Embedded Products Business Unit
2-9-32 Nakacho, Musashino-shi, Tokyo, 180-8750 Japan
TEL:81-422-52-2173
FAX: 81-422-52-5204
ep-ovs@yokogawa-digital.com
http://www.yokogawa-digital.com/en/

Distributor