

KMC

The Debugging Evolution

PARTNER **Jet 2**

JTAG Based Emulator For **ARM**, **SH** and **Intel**



*the Faster,
and to the Future.*

USB3.0
Support

64bit
Support

Kyoto Microcomputer, Co., Ltd.



*PARTNER Jet2,
the Master of Speed*

PARTNER Jet2

USB3.0 Support

PARTNER-Jet2 supports USB3.0 SuperSpeed mode which has 5Gbps communication speed.

Supporting USB3.0, even 4GB of trace data on Jet2 Model20 can be captured to host computer about 25 to 30 seconds.

In addition to it, by reviewing each implementation, PARTNER-Jet2 is dramatically improved in operation speed than PARTNER Jet even on USB2.0 operation.

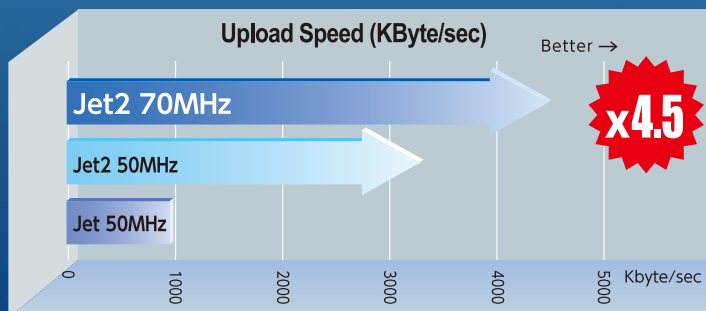
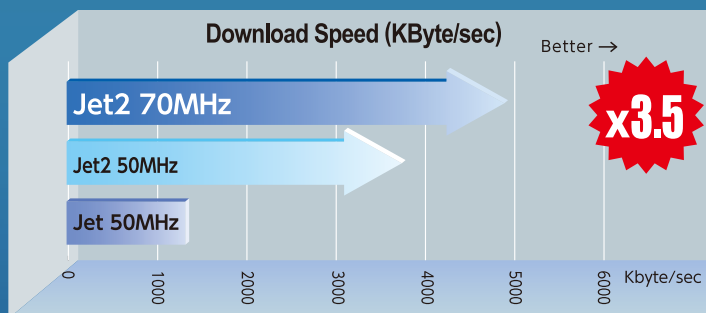
High Speed JTAG Clock Support

Supporting higher JTAG clock than PARTNER-Jet, configuration up to 100MHz on Model20 and 70MHz on Model10, are available.

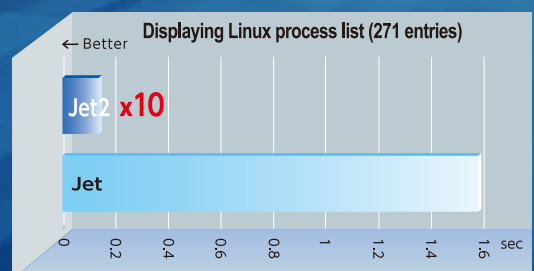
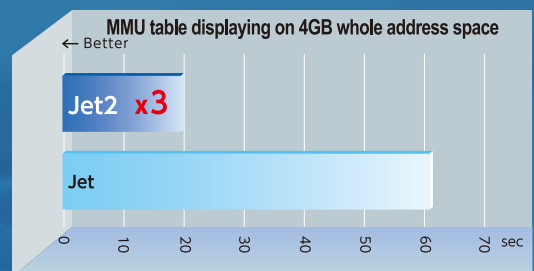
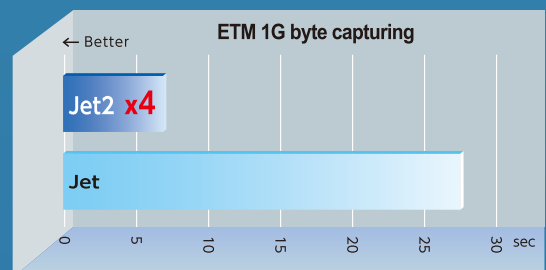
By more optimization on JTAG signal sampling, higher JTAG clock is available than PARTNER-Jet even on the same environment.

Higher JTAG clock improves overall debugging operation in speed.

Speed Comparison on PARTNER-Jet and PARTNER-Jet2



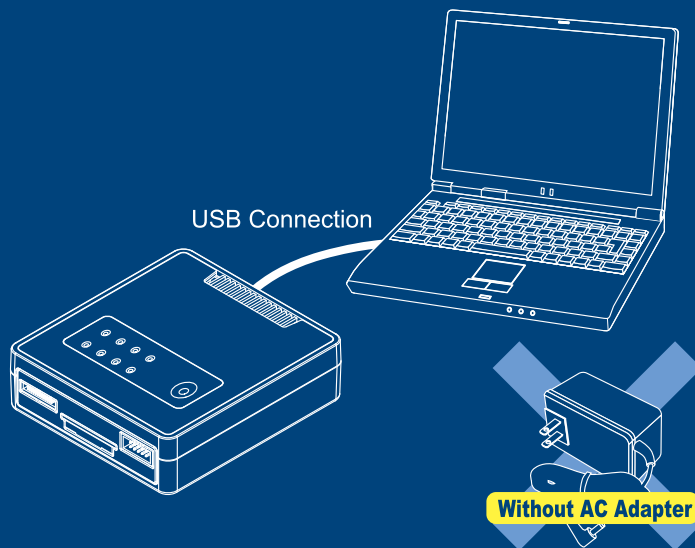
measurement conditions:
 Target CPU: ARM Cortex-A9 DualCore 1GHz (KMC KZM-A9-GT)
 Host Computer: Windows8.1 Pro (64bit) Core i7-4770
 USB3.0 on PARTNER-Jet2, USB2.0 on PARTNER-Jet (same USB port is used)
 Download/Upload: by JTAG clock described in the figures
 Others: measured by 50MHz JTAG clock



USB Bus Power Support

PARTNER-Jet2 Model10 supports USB bus power. The bus power operation is available not only on USB3.0 even on USB2.0 for most computers. Operation without AC power cable makes the equipment handling easier.

* If power voltage falls down, power LED shows warning. Please use the AC adapter attached to the product, in the case.



Intel Processor Support

On PARTNER-Jet2, in addition to ARM and SH processor, which have been popular so far, Intel processor is newly supported. To begin with the latest Intel® Atom™ processor, Z3000 family, is supported. And supporting Intel® Quark SoC X1000 is also planned. Supporting both of real mode and protect mode, proper to Intel processor, whole JTAG debugging on Intel processor, including system boot up and interrupt handling, becomes available.

- * Intel Hyper Threading Technology Support
- * Dual Core and Quad Core Support, and also available on SMP environment.
- * Linux Debugging Support, from kernel to user space (with multi-threading)
- * Real Mode, Protect Mode
- * 64bit Mode Support (x86-64 instruction set, 64bit address and register)

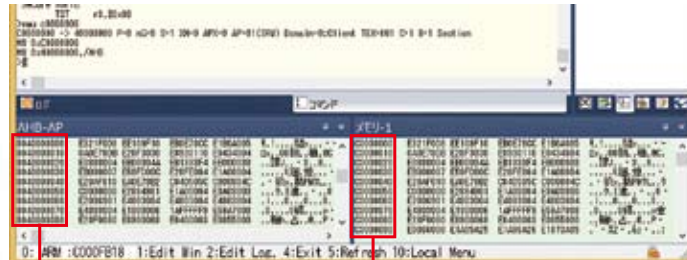


Intel Quark Soc X1000 Evaluation Board [Galileo]

64bit Support

PARTNER is ready to support 64bit architecture processor, such as ARM v8, which is expected to be used also on embedded system in future. On ARM Cortex-A15/A7, physical address is already extended to 40bit (LPAE), as this LPAE is supported, the address is displayed in 40bit format. in memory window display on debugger GUI. (not 40bit fixed, automatically recognized up to 64bit) And other functionality, such as address conversion command, also supports the LPAE.

40bit LPAE Support



Automatically recognizing address width in AHB-AP and AXI-AP, memory display and setting is available by 40bit address.

For debugger software, PARTNER, 64bit edition is available, also. (32bit edition is also available and installed by preference.) Native operation on 64bit Windows make it possible to support debugging of more growing software.

Probe Hot-Plug Support (on ARM and Intel processor)

Probe Hot-plug is supported which enables to connect and remove debug probe during target system operation.

If something unusual occurs, it is possible to start debugging by connecting the debug probe on the fly.

As debugging can be started just on the time of trouble occurrence, without duplicating task just for debugging, trouble shooting becomes efficient.



ARM CoreSight ITM Trace Support

PARTNER-Jet2 supports ARM CoreSight ITM trace not only on Model20 also on Model10.

On Model10, ITM streaming trace is available supporting SWO output at SWD debug connection.

This make possible to provide logging output in printf style in addition to usual debugging only by SWD debug function

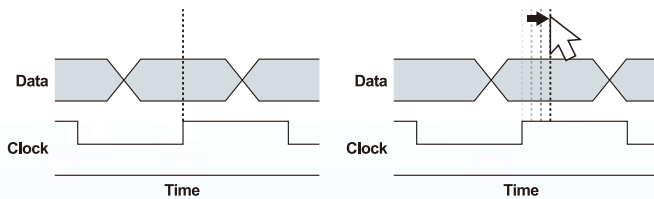
Improving Trace Clock Support

Trace clock up to over 500MHz is supported on standard ARM ETM 38pin probe.

It is possible to adjust sampling point, to support high speed and sensitive trace signals.

And signal skew compensation by setting each bit individually is available.

PARTNER-Jet2 Model20 itself has been designed considering much wider band width, and the support, such as ETM HSSTP, is also planned in future.



Large Capacity Trace Memory

PARTNER-Jet2 Model20 contains 4GB trace memory.

This is 4 times larger than PARTNER-Jet Model40, which had 1GB.

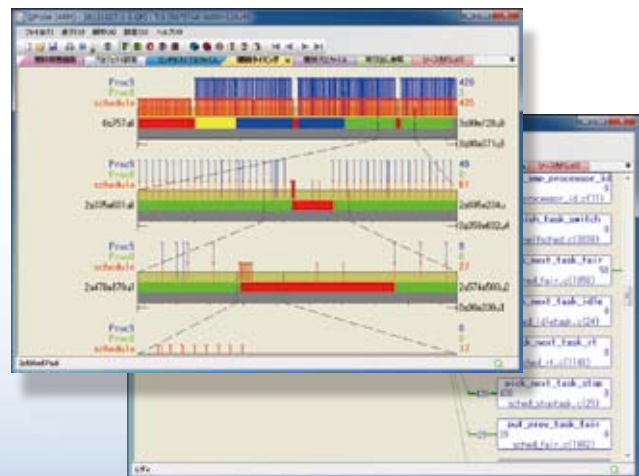
With 4GB memory, trace data corresponding to about 30 seconds of execution on ARM Cortex-A9 1GHz dual core (at PTM trace) becomes available, for an example.

Enhanced Collaboration with QProbe

QProbe is already provided as 64bit native application, so that data analysis process for larger trace memory dose not cause any problem.

64bit application has much capacity even for analyzing 4GB of trace memory.

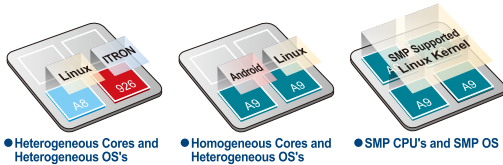
And according to growth of data to analyze, new analysis options, such as histogram display of function execution time are added.



Include whole PARTNER-Jet functions.

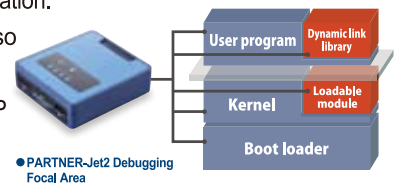
Multicore CPU Support

Multicore processor debugging is also available, just the same as PARTNER-Jet. Debugging on both of SMP and AMP processor is possible and diversified multicore is able to be supported. ARM CoreSight architecture is also supported, and enhanced feature, such as synchronous break by CTI and multicore trace, are available. PARTNER-Jet2 supports 16 cores, while PARTNER-Jet supported up to 8 cores, and more number of cores is possible.



Linux Support

Debugging functionality on Linux system, which had been admired at PARTNER-Jet, is available just the same. The technology that JTAG emulator directly recognizes user address space which Linux kernel generates, enables to provide total debugging functionality on kernel, module and application. Of course, it is also available on multicore and SMP environment.



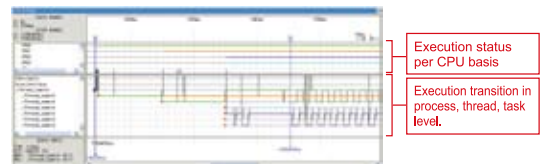
Snapshot

Snapshot function, which is useful for problem analysis, is also available. Snapshot function saves the target CPU status, contents of physical memory and realtime trace data for some point to file, so that post analysis for that point by debugger becomes available. By speedup of PARTNER-Jet2, snapshot generation is also speedup, and improved.



Event Tracker

The event tracker, which graphically displays several kinds of event occur on embedded software, is also available just the same. The filter DLL for event tracker is compatible with PARTNER-Jet and able to be used without changes.

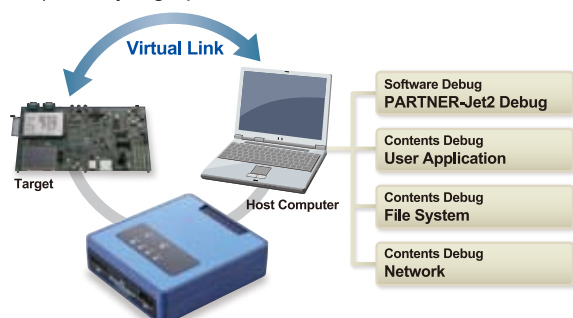


Profiling Function

Profiling function, which periodically samples program counter and displays execution occurrence per program functions basis, is also available. And it is available easily without any initialization. On PARTNER-Jet2, more precise profiling becomes available by acquisition of program counter in higher frequency.

VLINK Support

VLINK, which is collaborating with exeGCC is also available. VLINK program for PARTNER-Jet, works also on PARTNER-Jet2 without changes. And VLINK data transfer is generally improved in speed by high performance of PARTNER-Jet2.



PARTNER Jet² Model10



PARTNER Jet² Model20



List of Connector Support

For ARM

- JTAG 20PIN Connector (2.54mm pitch)
- ETM 38PIN Connector (Mictor Connector)
- Cortex 10PIN Connector (1.27mm pitch)
- Cortex 20PIN Connector (1.27mm pitch)
- TI 14PIN Connector
- Xilinx 14PIN Connector (2.0mm pitch)

For SH

- HUDI 14PIN Connector
- AUD 38PIN Connector (Mictor Connector)
- AUD 36PIN Connector

For Intel

- XDP 60PIN Connector

Annual Maintenance Service (onerous) includes followings.

- Technical support (FAX/e-mail)
- Software download service
- Master disk and documentation update service in free of charge
- Support on customer's or our vist basis (additional charge required)
- Support on customer's target system, if provided (additional charge required)
- Exemption of basic charge on hardware repair

- From PARTNER-Jet2, each target CPU is supported in generic manner on both of Model10 and Model20.
As an example, after purchasing Model 10 for ARM debugging, it is possible to use PARTNER-Jet2 for both of ARM and Intel, by purchasing additional debugger software for Intel.
- On PARTNER-Jet2, upgrade service from Model10 to Model20 after purchasing, is available.
Please contact your Kyoto Microcomputer Co., Ltd. for the procedures and price.

Specification

		Model10	Model20
Host Computer Interface		USB2.0/3.0	USB2.0/3.0
JTAG Clock		70MHz max.	100MHz max.
Execution Break Function	Software Break	63 points max.	
	Hardware Break	Hardware break function embedded on target CPU	
Trace Support		Support only ARM CoreSight ITM	ITM and processor branch trace
Realtime Trace Spec.	Clock	-	over 500MHz
	Trace Capacity	-	4GByte (32Gbit)
USB Bus Power Operation		✓	—
AC Adapter Rating	IN	AC100 ~240V/50-60Hz 0.3A	AC100 ~240V/50-60Hz 0.8A
	OUT	DC5V 2A	DC12V 2A
Host Computer Requirement		Windows Vista/7/8 both of 32 and 64bit	
Dimension		105(W) x 115(D) x 33(H)	105(W) x 115(D) x 56(H)
Operating Environment		Temperature: 5~35°C (41~95°F) Humidity: Less than 85% (No Condensation)	



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