

Embest PowerICE for ARM

- **A standard parallel-JTAG Emulator for ARM Processors**
- **Capable of supporting Embest IDE, ARM/ADS, ARM/SDT and GDB**
- **Downloading speed up to 120Kbyte/s and capable of being configured as different debugging speed**



Embest PowerICE for ARM is a powerful, easy to use in-circuit emulator with low cost and high speed up to 120Kbyte/s. It is an enhanced parallel-JTAG Emulator for ARM Processors which will quicken your development work greatly.

Embest PowerICE for ARM inherited the excellent performance of Embest Emulator for ARM. It uses no target memory and requires no porting to the target system. You can control target processor completely with Embest PowerICE. It means you can start, stop and single-step execution; read from and write to registers, memory, and system I/O; and download code to target RAM, program on-chip or on board flash. Embest PowerICE for ARM supports both target board power supply and external power supply and greatly speeds up the download of code up to 120Kbyte/s to facilitate your test and debug efforts.

- Supports in-circuit debugging, working at up to 120KB Per Second. Capable of being configured as different debugging speed.
- Supports ARM7TDMI, ARM720T, ARM9TDMI, ARM920T, ARM922T, ARM940T now (other target CPU's planned).
- Supports both target board power supply and external power supply.
- A parallel port connecting to the Computer's parallel port, and a JTAG interface connecting to the target system (20 or 14 pin JTAG port).

- Supports the real time watch point by setting the proper program breakpoint condition into Embedded ICE macrocell of ARM CPU directly.
- Supports downloading codes to the target system via Jtag port.
- Supports Embest IDE, ARM / ADS, ARM / SDT and GDB.
- Firmware can be upgraded by software without changing any hardware.

The target interface voltage levels of Embest PowerICE depend on the input voltage levels. It is 3V/5V compatible. The PowerICE provides three LEDs that show the operational status, labeled PWR/RUN/CON. LED PWR is power indicator. LED RUN indicates the data transmission between host pc and target CPU. LED CON is connection indicator.

Hardware Specification and Interfaces

✓ Interface Specification

- A standard male-to-female 25-way parallel cable connects the Embest PowerICE for ARM to the PC's parallel port.
- The connection to the target board is made by a 20-way (or 14 - way) female IDC header cable with all pins connected straight through (1-1, 2-2, ... 20-20). There are two types of IDC interface cable: 14pin and 20 pins. JTAG pin connections are described as figure A – 1 and A – 2.

Vsupply	1	2	RES
RES	3	4	GND
TDI	5	6	GND
TMS	7	8	GND
TCK	9	10	GND
RES	11	12	GND
TDO	13	14	GND
nSRST	15	16	GND
RES	17	18	GND
RES	19	20	GND

Figure A-1 20 Pin JTAG Connections

Vsupply	1	2	RES
nSRST	3	4	GND
TDI	5	6	GND
TMS	7	8	GND
TCK	9	10	GND
TDO	11	12	GND
RES	13	14	GND

Figure A-2 14 Pin JTAG Connections

Note: All GND pins should be connected to 0V on the target board.

The following table shows the JTAG pinouts.

Signal	I/O	Description
Vsupply	Input	This is the supply voltage to Embest PowerICE for ARM. It draws its supply current from this pin via a step-up voltage convertor. This is normally fed by the target Vdd. Valid power supply voltage is form 2.7V to 5.5V.
GND	-	Ground.
TDI	Output	Test Data In signal from Embest PowerICE for ARM to the target JTAG port. It is recommended that this pin be pulled to a defined state.
TMS	Output	Test Mode signal from Embest PowerICE for ARM to the target JTAG port. This pin should be pulled up on the target so that the effect of any spurious TCKs when there is no connection is benign.
TCK	Output	Test Clock signal from Embest PowerICE for ARM to the target JTAG port. It is recommended that this pin be pulled to a defined state.
TDO	Input	Test Data Out from the target JTAG port to Embest PowerICE for ARM.
nSRST	Output	Open collector output from Embest PowerICE for ARM to the target system reset. This pin should be pulled up on the target to avoid unintentional resets when there is no connection.
RES	-	Reserved.

✓ **Power Supply**

Power is supplied to the Embest PowerICE for ARM via pin 1 of the 20-way (or 14-way) IDC connector. This is normally fed by the target Vdd. Valid power supply voltage is from 2.7V to 5.5V. Power of Embest PowerICE for ARM also can be supplied by external input voltage valid 5V to 9V. Connection jack of the external voltage input show as figure A-3 following:

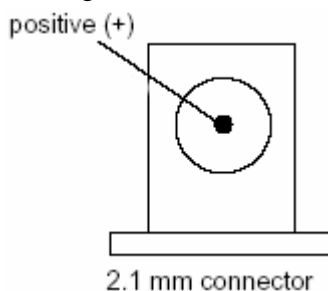


Figure A-3 connection jack of the external voltage input

Note:

- According to the way of voltage input, power supply switch of Embest PowerICE for ARM must place in the right position.
- Embest PowerICE for ARM cannot work if power voltage out of range, even were badly damaged.

✓ **LED Indicator**

LED PWR: power indicator

LED RUN: data indicator, indicate the data transmission between host pc and target CPU.

LED CON: connection indicator

Order Information

Order No.	C1
Item	Embest PowerICE for ARM
Description	<ul style="list-style-type: none"> - Embest PowerICE for ARM Jtag Emulator - Software and Manual in CD - A DB-25 parallel cable - A 20-pin JTAG interface cable - A 14-pin JTAG interface cable - 7.5V Power Adapter
Option Tools	Embest IDE for ARM Development Tools Suite I includes: <ul style="list-style-type: none"> • IDE, editor, GNU ARM Compiler and Linker, debugger, full registered version • Embest PowerICE for ARM Jtag Emulator • Embest Flash Programmer

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