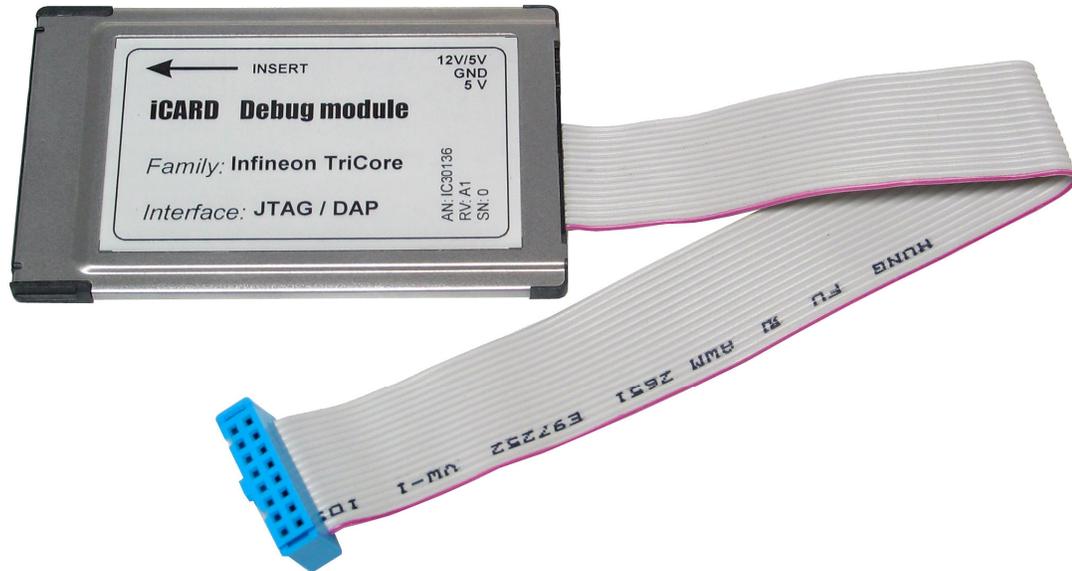Hardware Reference

Infineon TriCore family iCARD Debug module

Ordering code	IC30136

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Hardware Reference

Infineon TriCore family iCARD Debug module

The iC3000 support a wide range of serial debug interfaces like Motorola's Background Debug Mode (BDM), the Serial Debug Interface (SDI) and the On-Chip Emulation (OnCE) interface. JTAG based debug interfaces are also supported by these Emulators. For each specific debug interface a special iCARD is available.

The iCARD is a PCMCIA-style interface card which contains all necessary adaptations including the target interface cable for a selected serial debug interface. The iCARD plugs into the PCMCIA-style card slot of the iC3000 unit. Features like on-chip-, in-system programming and programming voltage generation are standard features.

Note: Whenever connecting to the target both target and the Emulator must be switched off. The Emulator is first switched on, and the target right afterwards. Note that otherwise during connecting the target a massive current spike may flow during static discharge or ground potential equalization.

On some debugging iCards beside the interface specific cable there's a 3-pin connector. The 5V/300mA output provides power to small low-power targets. On some iCards, also the 12V/60mA programming voltage is available and also generated by the iC3000 development system and routed to the iCARD's 3-pin connector. Note that the 12V output is controlled by the software. The output defaults to 5V. On the iC3000 the current for 12V flows from the 5V source. Thus, a 12V/50mA load represents 120mA load on the 5V power source. Note that on interface cards for ActiveEmulator, iTRACE and similar this connector is not available, and also on some iCards, the 12V output is not available since it is not needed.

When not in use, the iCARD should be kept in its protective antistatic bag to ensure its dependability and keep the 68-pin PC-Card connector clean.

The iCard is a delicate piece of equipment. Always handle it with care, make sure not to bend it or deform it in any way, to keep it clean, etc. If these instructions are not followed, damage to the iCard or the Emulator can occur.

Note: Despite using the same format, iCARDs are not pin compatible with PCMCIA cards. Do NOT use iCARDs in PCMCIA slots and vice-versa! If the iCARD is inserted into a PCMCIA slot, damage to the iCARD and/or the PCMCIA slot will occur. If a PCMCIA card is inserted into the iCARD slot, damage to the PCMCIA card and/or the Emulator will occur.
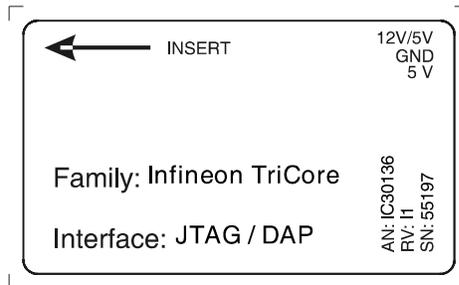
Temperature range

All iSYSTEM devices, unless explicitly otherwise noted, are specified to operate at room temperatures (specifically, between 10°C/50°F and 40°C/105°F).

Infineon TriCore family iCARD Debug module

Ordering code	IC30136
Dimensions (WxLxH, mm)	54x84x5

INSERT

12V/5V
GND
5 V

Family: Infineon TriCore

Interface: JTAG / DAP

AN: IC30136
RV: I1
SN: 55197

Supported CPUs		
TC1736	TC1767(ED)	TC1797(ED)

Please check with iSYSTEM for the latest list of supported devices.

TC1767ED and TC1797ED are special emulation devices, which feature an on-chip trace with the on-chip trace buffer, which is read out through the regular debug interface, either JTAG or DAP.

In order to use the trace, the user needs Trace license beside the regular winIDEA license.

Per default, Infineon TriCore iCARD supports the JTAG debug interface, and connects to the target through the 16-pin (2.54mm) connector.
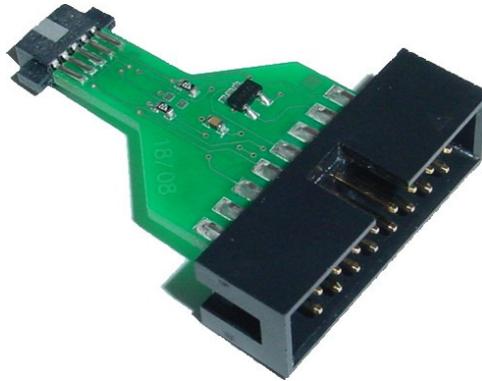
The following pinout is valid on the target side for the JTAG debug interface:

2	4	6	8	10	12	14	16
V_{REF}	GND	GND	RESET	BRK_OUT	GND	OCDS_E	NC
TMS	TDO	CPUCLK	TDI	TRST	TCLK	BRK_IN	NC
1	3	5	7	9	11	13	15

Infineon 16-pin JTAG debug target connector (2.54mm)

For debugging, at least TMS, TDO, TDI, TRST, TCLK and RESET signals must be connected between the development tool and the CPU. BRK_IN and BRK_OUT can be used optionally. The debugger provides 10k pull-ups on TRST, TMS and TCLK lines and 1k pull-up on the RESET line.

To connect to the target CPU featuring a DAP debug interface, a DAP debug adapter (ordering code: IAPIN16PIN10DAP) must be ordered separately.

IAPIN16PIN10DAP

The following pinout is valid on the target side for the DAP debug interface:

2	4	6	8	10
DAP1	DAP0	USER_IO	USER_IN	RESET
V_{REF}	GND	GND	NC	GND
1	3	5	7	9

Infineon 10-pin DAP debug target connector (1.27mm)

For debugging, at least DAP0, DAP1 and RESET signals must be connected between the development tool and the CPU. The debugger provides 4k7 pull-up on DAP0 signal and 1k pull-up on the RESET line.

Note the direction in which the iCARD is inserted into the iC3000 iCARD slot. The side with the label is the top side; the arrow shows the direction in which the iCARD should be inserted.