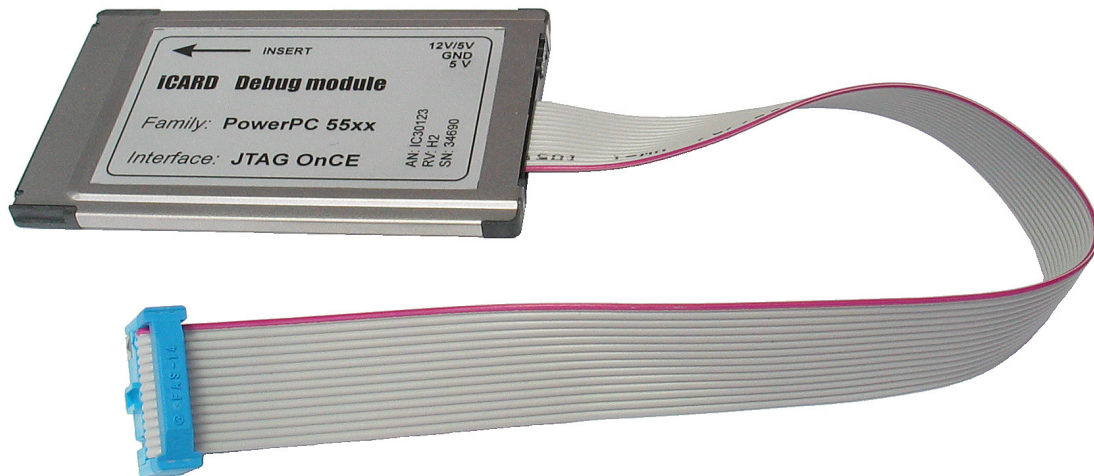


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## Hardware Reference

# PowerPC 55xx iCARD Debug module

Ordering code	IC30123-1
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All information, including contact information, is available on our web site [www.isystem.com](http://www.isystem.com). Feel free also to explore our alternative products.

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## POD Hardware Reference

### iCard

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.

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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.

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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.**

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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.

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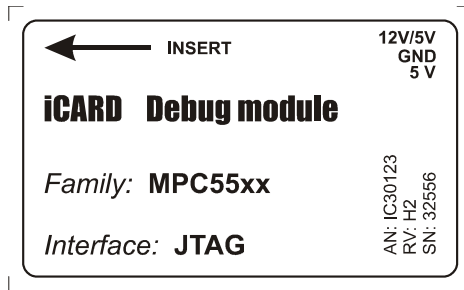
### Temperature range

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).

## Hardware Reference

### PowerPC 55xx iCARD Debug module

<b>Ordering code</b>	<b>IC30123-1</b>
<b>Dimensions (WxLxH, mm)</b>	<b>54x84x5</b>



Supported devices
MPC55xx
MPC551x
xPC56xx
MPC564x

Check with iSYSTEM for the latest list of supported devices.

The following pinout is valid on the target side:

2	4	6	8	10	12	14
GND	GND	GND	N.C.	TMS	GND	JCOMP
TDI	TDO	TCK	N.C.	RESET	VDD	RDY
1	3	5	7	9	11	13

*MPC55xx/MPC551x/xPC56xx/ MPC564x OnCE/JTAG pinout*

All pins except RDY (pin13) are connected and used by iCARD. Mandatory pins on the microcontroller side:

- GND, VDD, RESET, TMS, TDI, TDO, TCK

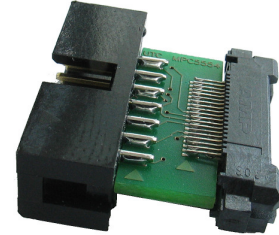
JCOMP is an optional pin. Some microcontrollers don't have this pin. Internally, this is actually JTAG TRST which resets JTAG (TAP) state machine. Because JTAG can be reset also by TMS and TCK, this pin is optional also for winIDEA.

If microcontroller has JCOMP pin but it is not connected to the target debug connector then it must be set to non active state in the target via a pull-up resistor. If not then TAP remains in reset and debugging is not possible.

## Adapters

Ordering code	IAPIN14MPCMIC38
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Per default, the JTAG debugger connects to a 14-pin target debug connector (2.54 mm pitch), which connects to the CPU JTAG debug port. In order to save space in the target, the target may provide only a Mictor38 connector, which connects to the MPC55xx Nexus debug port. In such cases, the user can order separately the IAMIC38MPCPIN14 adapter, through which the JTAG debugger can be also connected to the target MPC55xx Nexus debug connector (Mictor 38).



## Notes

- On Freescale and ST xPC56xx devices, the RESET pin is bidirectional while with other devices (MPC55xx) it's input to the CPU only (no feedback on the CPU reset can be reported to the debugger).
- If the debugged target device has a separate power supply for the on-chip debug module then this power supply must be connected to the target debug connector (pin 11).
- License for standard powerPC with MPC564x is included with this iCard, but not multi core.

## Important Information

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

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