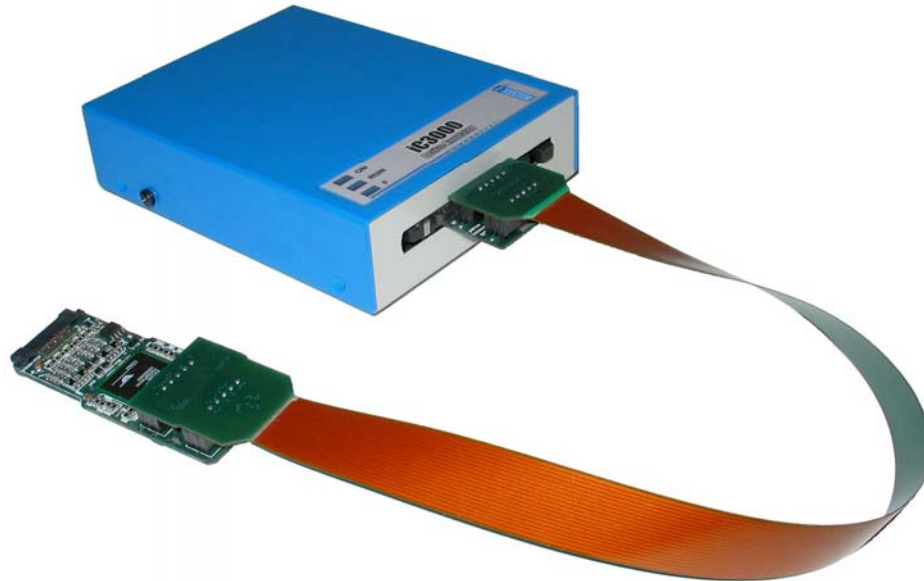


---

## Hardware Reference

### iTRACE Probe CR16C+

<b>Ordering code iTRACE Probe CR16C+</b>	<b>IC30365</b>
<b>Ordering code iTRACE Card + Flex Cable</b>	<b>IC30331</b>



Thank you for purchasing this product from iSYSTEM. This product has been carefully crafted to satisfy your needs. Should any questions arise, do not hesitate to contact your local distributor or iSYSTEM directly. Our technical support personnel will be happy to answer all your technical support questions.

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.

iSystem constantly yields for development and therefore certain pictures in this documentation may vary slightly from the actual product you received. The differences should be minor, but should you find more serious inconsistencies of the product with the documentation, please contact your local distributor for more information.

This document and all documents accompanying it are copyrighted by iSYSTEM and all rights are reserved. Duplication of these documents is allowed for personal use. For every other case a written consent from iSYSTEM is required.

Copyright © 2003 iSYSTEM, GmbH.  
All rights reserved.  
All trademarks are property of their respective owners.

---

## Hardware Reference

---

### iCard General Notes

The iC3000 and iC4000 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 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 iC3000/4000 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.

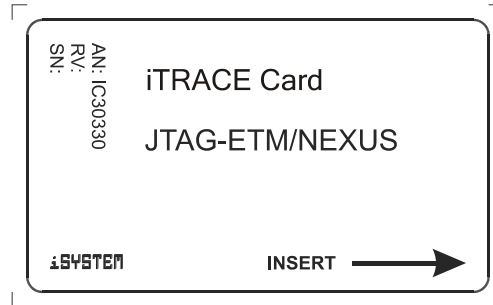
---

---

## Hardware Reference

### iTRACE Card JTAG-ETM/NEXUS

Ordering code	IC30331
Dimensions (WxLxH, mm)	54x105x5



The iTRACE Card is used to connect the iTRACE Probe to the Emulator. The probe is connected to the card using an iTRACE Card Flex Cable.

The iTRACE Card Flex Cable interconnects the iTRACE Card and the iTRACE probe.

When connecting the modules, please take care that all pins are connected on both sides of the cable. The connectors are designed in such way that the cable can not be inserted in the wrong way.

#### Important iCard information

Note that despite using the same format, iCARDS are not pin compatible with PCMCIA cards. Do NOT use iCARDS in PCMCIA slots and vice-versa!

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.

---

## Hardware Reference

### iTRACE Probe CR16C+

<b>Ordering code</b>	<b>IC30365</b>
<b>Dimensions (WxLxH, mm)</b>	<b>28x73x13</b>



The iTRACE probe is used to connect the target to the Emulator. The probe is connected through the iTRACE Card via the iTRACE Card Flex Cable.

#### **Emulation Notes**

Hot attach is not supported. The probe must not be inserted into the target if the target is turned on or damage to the probe or iTRACE Card can occur.

It is advised to first turn on the Emulator and then the target.

## Target Pinout

The Probe comes shipped with a standard Nexus 50-pin AMPMODU Target Connector, used to connect to the target.

Signal direction	Signal	Pin	Pin	Signal	Signal direction
	n.c.	1	2	n.c.	
	n.c.	3	4	n.c.	
Input	TDO	5	6	RDY	Input
Output	~RESET	7	8	VREF	Input
Output	~EVTI	9	10	GND	
Output	TRST	11	12	GND	
Output	TMS	13	14	GND	
Output	TDI	15	16	GND	
Output	TCK	17	18	GND	
Input	MDO0	19	20	GND	
Input	MCKO	21	22	GND	
Input	~EVTO	23	24	GND	
Input	~MSEO0	25	26	VENDOR_IO0	Input/Output
Input	MDO1	27	28	GND	
Input	MDO2	29	30	GND	
Input	MDO3	31	32	GND	
	n.c.	33	34	GND	
Input	~MSEO1	35	36	GND	
Input	MDO4	37	38	GND	
Input	MDO5	39	40	GND	
Input	MDO6	41	42	GND	
Input	MDO7	43	44	GND	
	n.c.	45	46	GND	
	n.c.	47	48	GND	
Input/Output	VENDOR_IO1	49	50	GND	

*Nexus 50-pin AMPMODU target pinout*

## Input/Output Signals

The input signals ~EVTO, ~MSEO0..1, RDY, TDO, MCKO and MDO0..7 have 10Kohm impedance. The voltage must be between 1.8 and 5V.

The output signals ~RESET, ~EVTI, TRST, TMS, TDI, TCK, MCKI and MDI0..1 are push-pull outputs, the output voltage is equal to 3.3V or equal to VRef, if VRef is lower than 3.3V. If Vref is higher, then it is limited to 3.3V.

The input/output signals VENDOR\_IO0 and 1 are open drain signals with a 1Kohm pull-up to the VRef level.

The VRef is an input with the resistance of 1Kohm and is used only for reference. Its value can be between 1.8 and 5V.

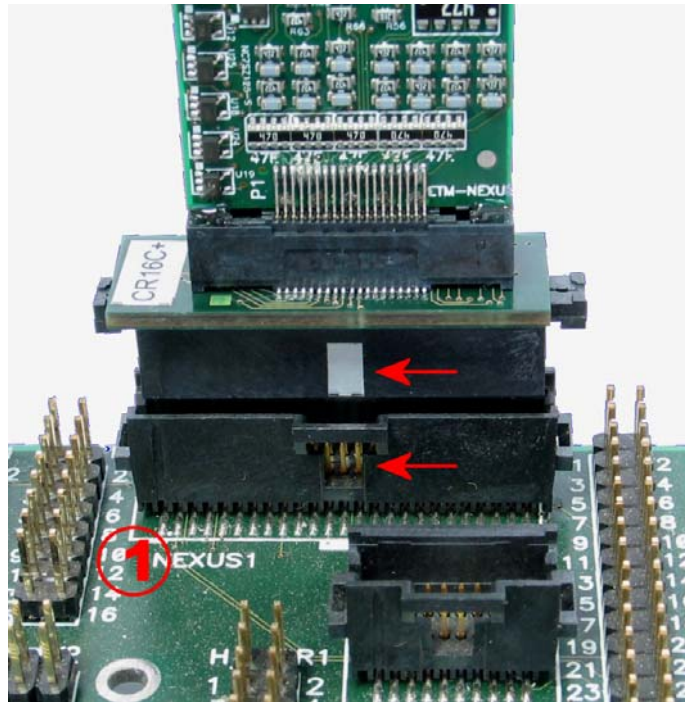
The threshold for inputs is  $\frac{1}{2}$  VRef, if VRef is 3.3V or lower. If VRef is higher than 3.3V, the threshold is  $\frac{1}{2}$  of 3.3V. The minimal VRef is 1.8V.

The signals marked with n.c. should not be connected.

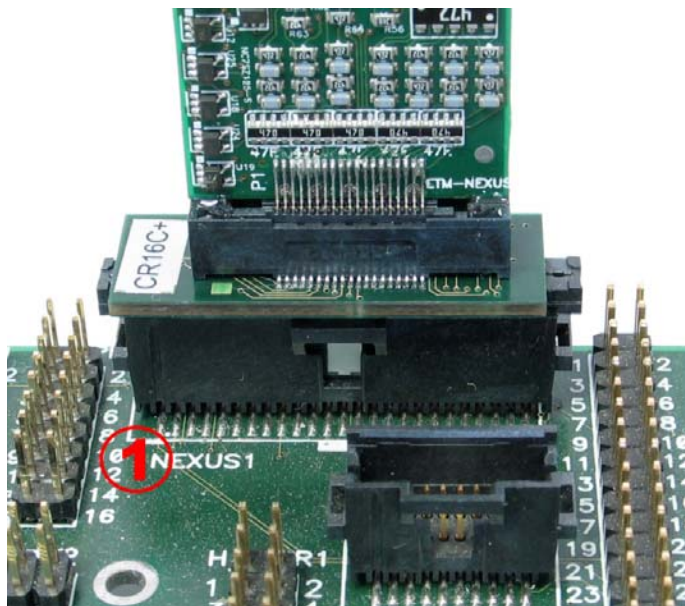
## Connecting the Probe to the target

Pay special attention to locate pin 1 properly on both, the adapter and the target side.

Locate the white or silver sticker on the adapter (50-pin female connector). It should match with a notch on the target 50-pin male connector.



Make sure that the adapter is firmly connected to the 50-pin male target connector.



*Connected adapter*

Notes:

Notes: