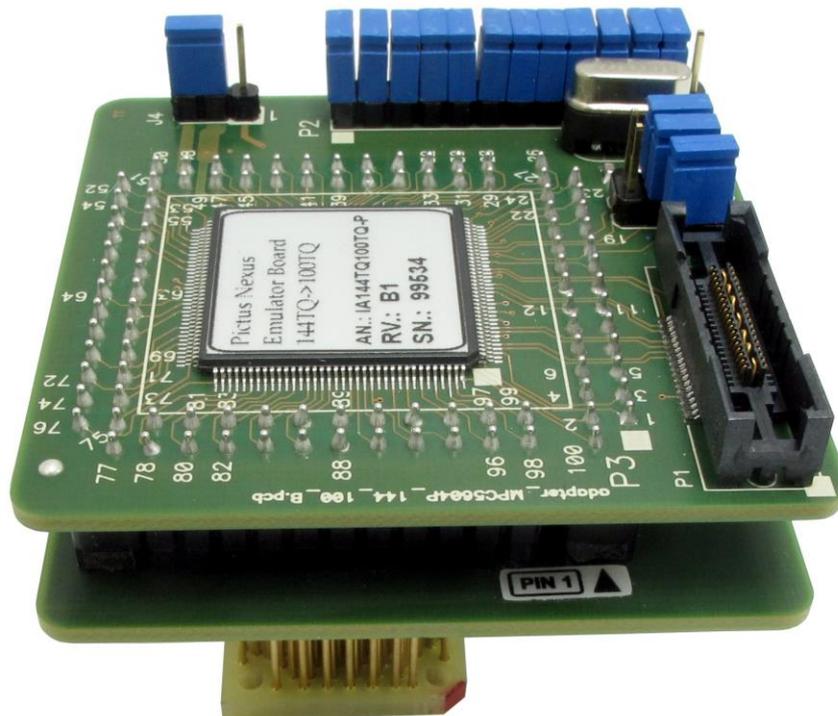


Adapters

“Pictus” Nexus Emulation Board 144TQ - 100TQ

Ordering code	IA144TQ100TQ-P
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Target CPU package: QFP100

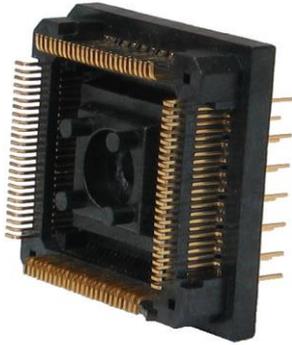
Original MPC5604P microcontroller in the QFP100 package has no Nexus port at all which may be a significant drawback during the development and test process.

For this purpose, the “Pictus” Nexus Emulation Adapter is based on the MPC5604P microcontroller in the QFP144 package, which also exposes 4-bit Nexus port. The Emulation Adapter exhibits the same behaviour to the target as the original 100-pin microcontroller and additionally provides the Nexus port, which allows advanced functionalities like trace, profiler and code coverage.

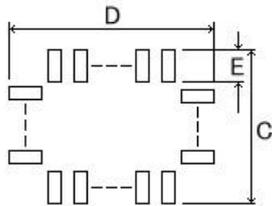
A 100-pin solder part, which must be ordered separately under the IA100TQ-SOLDER ordering code, is soldered to the target (PCB) instead of populating the original microcontroller in a 100-pin QFP package. Then the Emulation Adapter, which acts as the original microcontroller and additionally provides debug Nexus port, is connected on top.

Contact iSYSTEM sales representative for more details on available Nexus tools.

- IA100TQ-SOLDER

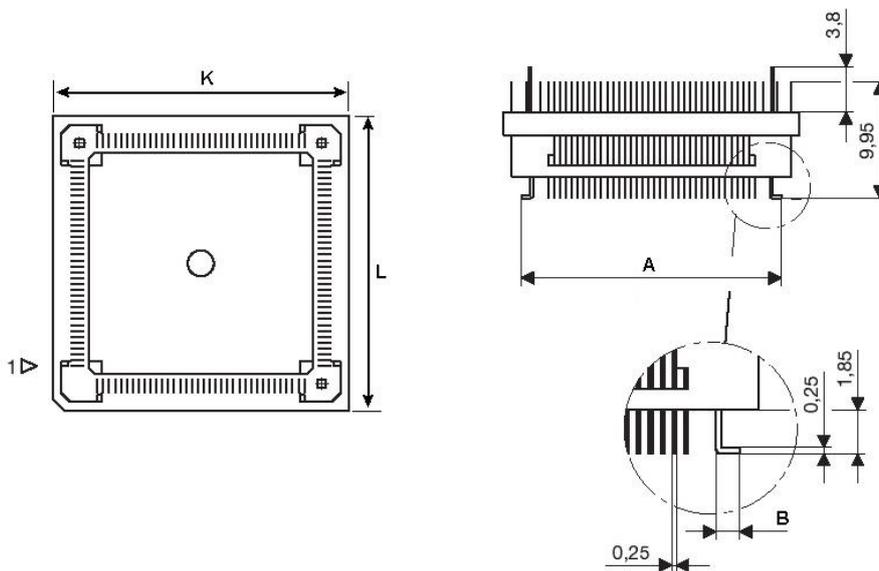


Solder part, which is being soldered to the target.



(Unit: mm)						
A	B	C	D	E	K	L
16.5	1.125	17.0	17.0	2.15	19.55	19.55

Recommended (by TET) PCB footprint size



IA100TQ-SOLDER dimensions

Jumper configuration

J1: target reset configuration

Jumper J1 connects the reset line between the emulation device and the target. By default J1 is populated.

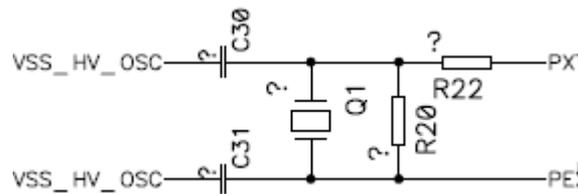
J2 and J3: clock source configuration

Jumpers J2 and J3 select clock source for the emulation device. Per default, both jumpers are set to position 1-2, which yields clock source being used from the emulation adapter.

For the first time after receiving the emulation adapter, it is recommended that it's tested with this setting. Once it's confirmed that is operational, target clock use (J2 & J3 position 2-3) can be tested.

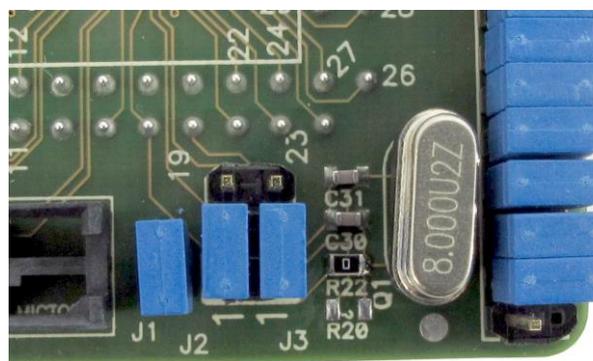
Note that the emulation adapter may not operate when crystal circuit is used in the target. Typical design guideline is that a crystal should be as close as possible to the microcontroller. However, it may happen that the target crystal may not oscillate with the emulation adapter since clock lines (XTAL, EXTAL) between the target and the emulation device on the emulation adapter are prolonged. There should be no problem with the oscillator being used in the target.

If an oscillator in the target is not an option and the target crystal doesn't oscillate in conjunction with the emulation adapter, clock from the emulation adapter must be used (J2 & J3 position 1-2). In this case, a crystal circuit must be assembled on the emulation adapter.



Crystal circuit

Crystal circuit is located in the corner of the emulation adapter, next to the Nexus (Mictor) connector and jumpers J2 and J3.



Per default, 22pF capacitors are populated for C31 and C30, 0 ohm resistor for R22 and 8MHz crystal for Q1. R20 must not be populated. Note that these values are valid for 8MHz crystal only. If different crystal is used, appropriate capacitors and resistor must be soldered (replace original ones).

J4: V_{DD_LV_REGCOR} configuration

Jumper J4 selects connection of the V_{DD_LV_REGCOR} signal. See schematic for more details. By default J4 is set to position 2-3, connecting the V_{DD_LV_REGCOR} signal from the target directly to the V_{DD_LV_REGCOR} of the QFP144 device on the emulation adapter.

Position 1-2 should be used only if V_{DD_LV_REGCOR} signal is not connected in the target. In such case, core voltage is supplied by means of the emulation adapter.

P2: power selection

The P2 header row is used for power supply selection.

Refer to the microcontroller user manual for more details which power supply designation belongs to which power supply.

Signal direction	Signal	Pin	Pin	Signal	Signal direction
target	VDD_HV_REG	1	2	VDD_HV_REG	CPU
target	VDD_HV_FL	3	4	VDD_HV_FL	CPU
target	VDD_HV_ADC1	5	6	VDD_HV_ADC1	CPU
target	VDD_HV_ADC0	7	8	VDD_HV_ADC0	CPU
target	VDD_HV_OSC	9	10	VDD_HV_OSC	CPU
target	VDD_HV_IO	11	12	VDD_HV_IO	CPU
	NC	13	14	NC	
	NC	15	16	NC	
	NC	17	18	NC	
	NC	19	20	NC	
	GND	21	22	GND	
	GND	23	24	GND	
	GND	25	26	GND	

P2 signal description

By default jumpers are set and connect target power supply coming from the target to the microcontroller residing on the emulation adapter. In principle, pins 1-2, 3-4, 5-6, 7-8, 9-10 and 11-12 must be bridged only but for the convenience and ease of use all jumpers are set, except for pins 25-26. Pin 26 is the polarizer key preventing incorrect connection of the IEA-PS power supply when being connected.

If a different power source is to be used (e.g. in case of standalone operation), all jumpers must be removed, and power source must be applied to VDD_HV_REG (pin 2), VDD_HV_FL (pin 4), VDD_HV_ADC1 (pin 6), VDD_HV_ADC0 (pin 8), VDD_HV_OSC (pin 10), VDD_HV_IO (pin 12) and GND (pins 22, 24, 26) signals.

iSYSTEM power supply adapter can be ordered separately under the IEA-PS ordering code. It connects on top of the emulation adapter directly to the U3 header row and allows standalone usage of the emulation adapter. 3.3V or 5V voltage can be selected for each group with appropriate jumpers J0-J9. This is convenient when the target is not available or it's not adjusted for the emulation adapter connection yet.

Notes:

Notes:

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