
POD Hardware Reference

Motorola 68LC302 ActivePOD rev. B

Ordering code	IC30452
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POD Hardware Reference

Active POD

Active PODs

Active PODs can be used connected to iC3000(HS) or iC4000 Emulator through the iBUS Active Emulator/Trace interface.

The following elements of interest are located on all Active PODs:

- emulation CPU - acts on behalf of target's CPU. On some PODs you must use the same CPU on the POD as it is used on the target (see your POD reference page). In such cases, remove the CPU from the POD and insert the CPU that you use in the target system, in its place.
- red LED - lit when CPU is running
- green LED - lit when Emulator is ready for emulation

For every POD following information is given:

- ordering code;
- information on available speed versions and required Emulator access time;
- size and position of PIN1 on the target adapter relative to bottom left corner.

The memory range specifies the range of addresses that a POD can address. If this specification is omitted the default 1MB is assumed.

PIN1 location on every component is also marked on the circuit board with a square block (PIN 1 pin is soldered a square block, other pins have a round pin).

Trace

The ActivePOD has integrated Trace capabilities that can be utilised if the interface iCard with trace capabilities is used. See the Trace section in the Hardware User's Guide for general information on Trace and POD information for specific information on trace signals (AUX, TrigOut, etc.).

Final Target Application Test

After the application is being more or less debugged and final application test is performed, it is recommended to remove all breakpoints and to close all debug windows (memory, SFR, watch...) to eliminate any possible influence of the emulator on the CPU execution. There were cases where the target application has been behaving differently with the target CPU inserted or the POD connected. If the debugger is configured to update some debug windows in real-time, the user may not be aware of that the CPU execution may be slightly disturbed. However, when the monitor access type is configured to update debug windows while the CPU is running, the CPU execution is disturbed significantly, depending on the necessary number of memory accesses to update opened debug windows.

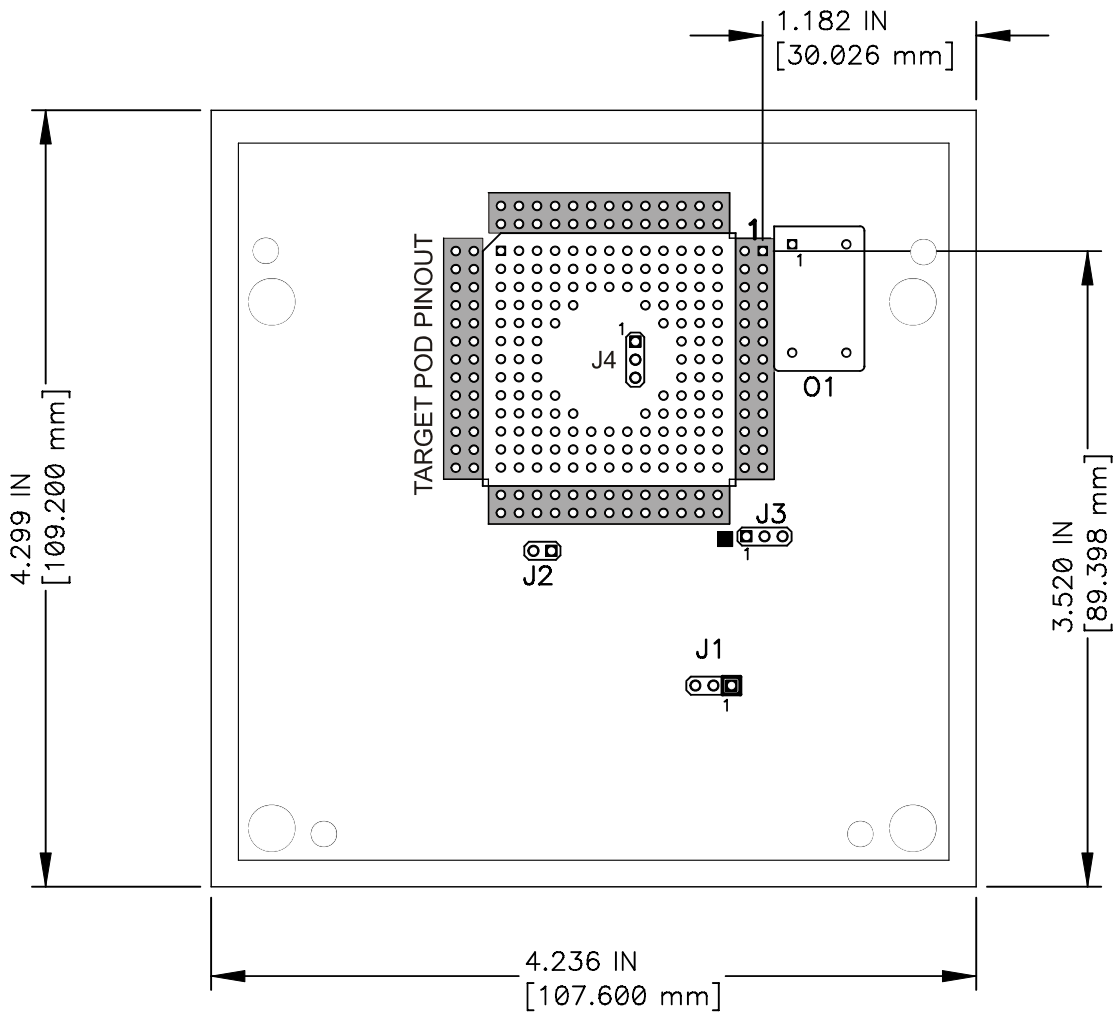
There are cases when internal peripheral device requires read access of the particular register during the device configuration. The user has had SFR window opened and the necessary read access was actually performed by the debugger and not by the application as it would be correct. Therefore, the application was working fine with the emulator, but a standalone application didn't work correctly, as the peripheral device was not configured properly.

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Ordering code	IC30452
POD Speed (MHz)	25
Exchange CPU	NO
Emulation Memory	16 MB
Trace Buffer Depth	64k frames

This POD is connected to the ActivePOD Emulator Unit II.



Motorola 68LC302 ActivePOD, bottom view

Emulated CPU
68LC302

Jumper Settings

All jumpers, with the exception of J1, J3 and J4 must not be moved and must remain set as set in the factory.

Voltage setting

Jumper J1 determines the voltage level. Remove the bottom housing plate in order to access it.

Position	Vcc level
1-2	3.3 V
2-3	5.0 V (default)

Jumper J1 settings

Clock source and PLL setting

Jumper J3 determines the internal CPU clock source. The clock is provided either by emulator or from the oscillator on the POD.

Position	Internal clock source
1-2	Emulator (default)
2-3	POD oscillator

Jumper J3 settings

Jumper J4 determines the internal CPU clock source.

Position	PLL operation
1-2	On (VCCSYN- Vcc)
2-3	Off (VCCSYN-GND)

Jumper J4 settings

Emulation Notes

Checksum

When performing any kind of checksum in the emulated (code) area, note that all breakpoints must be removed before, otherwise the results are distorted. Note that the emulator forces "breakpoint" instruction on the data bus when executing the code at the address where breakpoint is set.

Clock

Clock source can be either used internal from the emulator or external from the target. It is recommended to use the internal clock when possible. When using the clock from the target, it may happen that the emulator cannot initialize any more.

It is dissuaded to use a crystal in the target as a clock source during the emulation. It is recommended that the oscillator is used instead. Normally, a crystal and two capacitors are connected to the CPU's clock inputs in the target application as stated in the CPU datasheets. A length of clock paths is critical and must be taken into consideration when designing the target. During the emulation, the distance between the crystal in the target and the CPU (on the POD) is furthermore increased, therefore the impedance may change in a manner that the crystal doesn't oscillate anymore. In such case, a standalone crystal circuit, oscillating already without the CPU must be built or oscillator used.

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