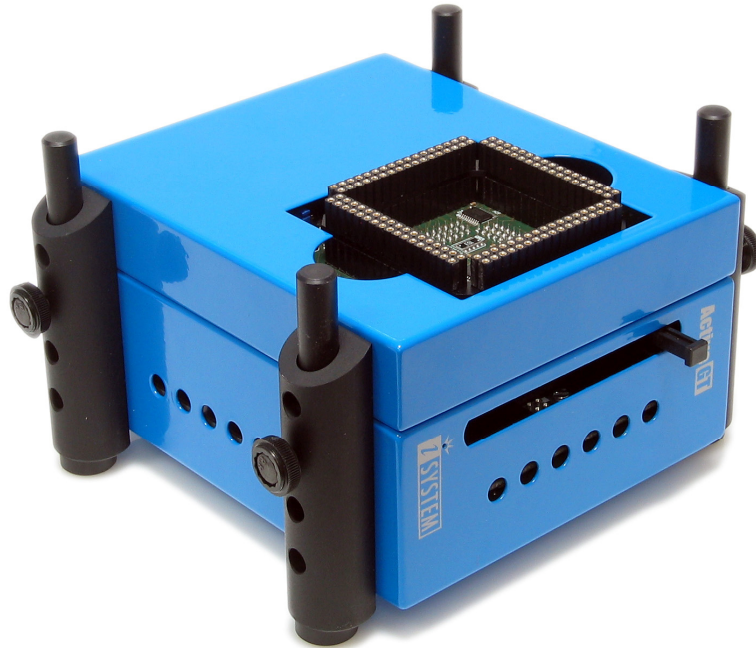

POD Hardware Reference

ActiveGT POD Freescale 68332

Ordering code	IC30750
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POD Hardware Reference

In-Circuit Emulation PODs

ActiveGT PODs can be used connected to the iC3000 Emulator through the ActiveGT interface.

A green LED is lit when the ActiveGT POD is powered on.

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).

AUX Inputs

The POD has a special interface for an additional ActivePRO/GT AUX card (IC30338), which provides 16 AUX auxiliary inputs. Signals connected to these inputs are either sampled with the trace cycle or on the signal edge change. Inputs are divided into two identical blocks with 8 inputs each. Every block has an adjustable input threshold from 0 to 3V. Inputs are 5V tolerant. For more information see the hardware reference for the ActivePRO/GT AUX Card.

Trigger Output

A trigger output is available on the module. For instance an external logic analyzer can be connected to a coax SMA connector, which provides a 3.3V pulse on a trace trigger event.

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.

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).

POD Hardware Reference

ActiveGT POD Freescale 68332

Ordering code	IC30750
POD Speed (MHz)	25
Exchange CPU	YES

Before connecting the PODs, make sure you have read the technical notes on the Motorola 683xx Family in the Hardware User's Guide.

Emulated CPU
MC68331
MC68332

By default MC68331 CPU is inserted into POD and emulates MC68331. In order to emulate 68332, the CPU must be exchanged with the MC68332. Please consult with iSYSTEM technical support in order to exchange the CPU.

Power Supply

The POD can be powered either from the target or from the emulator ('Hardware/Emulation Options/Vcc/Clock' tab. From the emulator, it's always powered with 5V while from the target it can be powered either with 3.3V or 5V.

The Clip-over Adapter

The POD supports using a clip-over adapter. When using a clip-over adapter, the target CPU doesn't need to be removed. However, the core of the target CPU must be disabled by connecting the TSC pin of the target CPU to $1,6 \cdot VDD$.

Note that extra attention must be paid to the connection when using a clip-over adapter. It may happen that the connection is imperfect and the emulation doesn't start at all. From this aspect, it's more recommended to remove the target CPU and to use standard iSYSTEM's adapter solution to connect the POD to the target. Please, refer to the adapter documentation for more details on available adapter solutions.

Emulation Notes

Internal RAM, Internal EEPROM

If the CPU provides a capability to write to the internal RAM or EEPROM via memory window (no specific programming sequence required), the download file can be loaded to the internal RAM or EEPROM using the 'Target Download' option. The debugger downloads the code to the internal memory after reset via the CPU. If the CPU requires some registers to be configured before the CPU is able to write in the EEPROM/RAM area, the user must configure the necessary registers respectively, using the initialization dialog. Any sequence, added in the initialization dialog, is executed immediately after reset, before the download is performed.

Note that debugging is limited while executing the program in the internal EEPROM or RAM. While the CPU accesses internal memory resources, the in-circuit emulator (ICE) loses the control over the CPU since the external bus is not active. Therefore, breakpoints cannot be set and the user's program cannot be stopped or stepped when executing in the internal EEPROM/RAM. Additionally, debug windows cannot be updated as well.

Normally, in the target application the CPU executes the program in the internal or external ROM. Using the ICE, ROM memory is overlaid by the emulation memory and consequently the program can be debugged without restrictions. But, sometimes, there is a need to execute some short routines in the CPU internal memory. Using the ICE, the user can run such routine, but he cannot debug it.

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.

Target Adapters

iSYSTEM offers various adapter solutions for this POD. Please refer to the adapter documentation for more details.

Notes:

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