



KSE5-486
In-Circuit
Emulators
KSE5-386

Concept



KSE5 Support For 386 And 486

The KSE5 supports the entire line of 386/486 product families. In fact, our KSE5 was the first emulator to support the 486 microprocessor. Since then, many units have been used by numerous customers all around the world, and we have used their feedback to develop subsequent units.

Our KSE5 emulators for 386 and 486 are used in many areas such as hardware development, hardware start-up and verification as well as software development, integration and field service. A wide range of indispensable features as well as our long experience in the world of emulation mean that our emulators with their adapters and interfaces are a reliable help for all developers.

1

Bondout CPU

The use of the bondout chip makes unrestricted emulation possible, even in protected mode. The segment description register can be displayed and modified. Information on GDT-Base and IDT-Base is not required.

2

Full Control

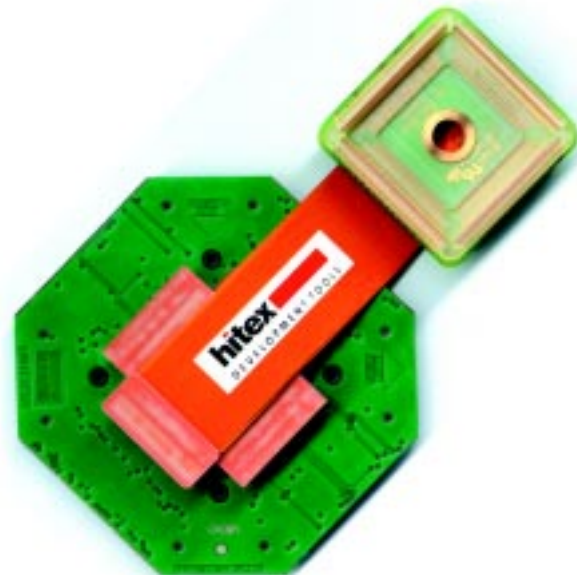
The KSE5 fully supports the 5V-tolerant I/O features of the 486 microprocessors.

In addition, a target system is not required since all necessary control signals are generated by the emulation hardware. The internal clock generator supplies the CPU with a wide range of clock rates. The stand alone operation allows software development and evaluation before the target hardware is available.

3

Good Connections

The revolutionary PressOn adapter (patent pending), which is available for 386 and 486 packages, combines the advantages of minimal space requirements on the target PCB with extremely reliable and robust pin contact. There is no need for modifying the target system. In addition to this new adapter technology, we also offer conventional adapters.



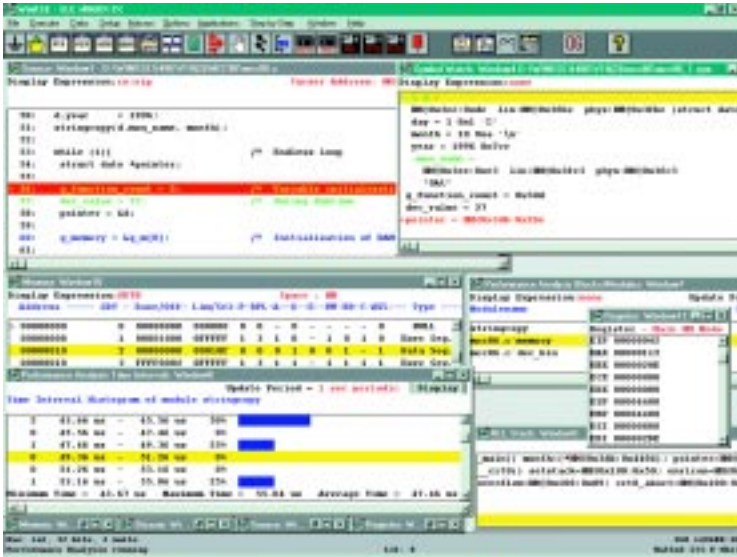
4

Universal Emulation

Due to its universal concept, upgrading a KSE5 to another processor or processor family is both inexpensive and easy. The KSE5 can also be operated via a TCP/IP-based network. This is particularly useful when working on difficult to access systems or under unfavourable external conditions such as high noise levels in the surrounding area.

Debugger Interfaces

Various debugger interfaces can be used with the KSE5: Hitex's WinKSE, CAD-UL's XDB and DDC-I's DACS-80x86 ADA/ICE interface. Each of these interfaces have their particular advantages.



WinKSE

The WinKSE interface offers a large number of debugging options in the familiar standard Windows environment. Extensive macro capabilities offer a perfect environment of automated testing. For every single breakpoint, an action can be related, such as saving of window contents, reprogramming of breakpoint/trigger settings or generating a trigger for external measuring instruments (oscilloscope, logic analyzer). Frequently used sequences of commands can be combined in macros and linked to icons.

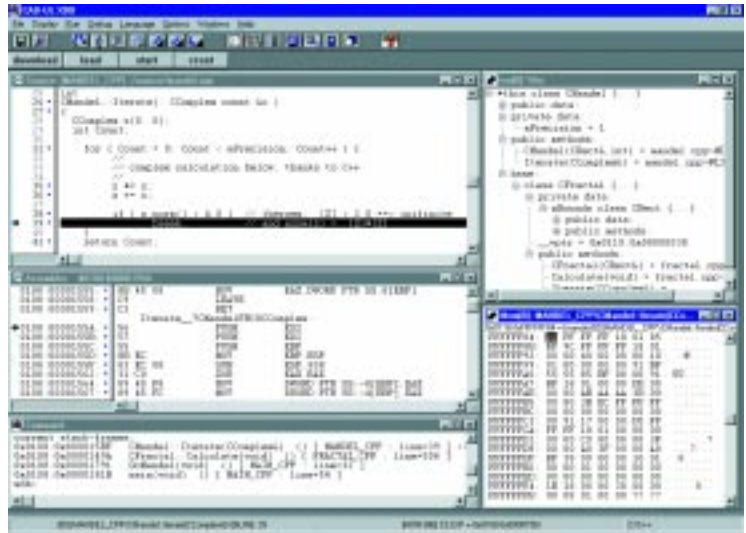
WinKSE supports symbolic source level debugging for many common compilers and linkers, and thus perfectly fits into existing tool chains. Powerful trace and breakpoint capabilities allow filters and conditions to be easily set and make fast and efficient bug finding easier. The WinKSE has been adapted to the KSE5 to get the most out of the emulator hardware.



XDB-Debugger From CAD-UL

Thanks to the close cooperation with our partner CAD-UL, we are able to offer a complete, fully Intel compatible tool chain. The XDB is a high-level language debugger, capable of debugging full protected mode applications. It supports C, C++, Pascal, PLM and Assembler.

Also available as a ROM-Monitor solution and as an interface to real-time operating systems (pSOS+, RMOS3, RMX), the XDB's user-friendly graphical interfaces have the same look and feel for both Windows and UNIX hosts. The display of the dynamic call hierarchy allows the user to view and modify the value of local variables and parameters within a debugger dialog. The XDB is the ideal tool for software development.



DDC-I

The DACS-80x86 ADA/ICE debugger of DDC-I combines the advantage of this sophisticated debugger and the real-time operation of the KSE5. It is specifically tailored to the KSE5 and represents the most efficient way of ADA-debugging.

Technical Data

Real-time Emulation	System dedicated for real-time emulation, trace recording without real-time violation (386), warning on every real-time violation; execution events can be configured as pass-points to generate a trigger without real-time violation.
Emulation Memory Size, Granularity	1 MByte, 2MBytes, 4 MBytes or 8 Mbytes; smallest block to be mapped 4 kBytes
Access Protection	Mapped areas can be write protected.
Triggers/ Breakpoints	Triggers can be programmed with pre-/post trigger (0%, 10%,...90%, 100%), external trigger output, 4 execution events (using debug registers); 4 bus events (using external comparators): address match, address ranges, masking of single Bits, data match, bus status, predefined status for easy selection, 8 external inputs
Counters	3 event counters, 16 bits wide
Sequence Levels	16 levels, branches to every used level when an event occurs; depending on the respective level, trace recording can be controlled differently.
Trace	8192 or 32768 samples (frames); space saving bus cycle recording; 112 bits of information for sample (frame)
Time Measurement	47-bit time counter (14 ns resolution); time information absolute and relative
Control Lines	Target signals can be set inactive (i.e. NA#, NMI, SMI, KEN#, INTR)
Built-in Clock Generator	Range 1 MHz to 100 MHz in steps of 100 kHz, can be fed into target hardware
Performance Analysis/ Code Coverage	Uses emulation memory and trace hardware (no additional hardware required)
Debugger Interfaces	Hitex WinKSE, CAD-UL XDB, DDC-1 DACS-80x86 ADA/ICE
Network	TCP/IP protocol
Host Connection	High-speed parallel 16-bit interface; plug-in card for 16-bit ISA slot
Power Supply	Wide voltage input, 85...260 V VAC autodetection; 50/60 Hz
Target Interface	Hardware implemented for 5-Volt tolerant I/O 486 support (3-Volt processor allows 5-Volt inputs)



The company

Hitex was formed in 1976 and has focused on efficient and professional solutions in the field of microprocessor development. Since then, we have been operating successfully in the fields of

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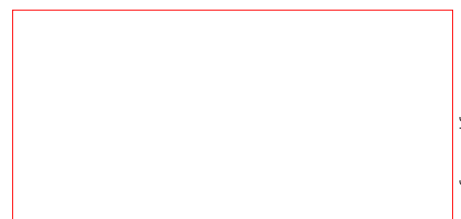
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