

Development Tools
for
ST7



Embedding Software Quality



Dedicated for ST7



Verify and Optimize

Embedding Software Quality is our main focus targeted to offer innovative, or user-friendly, and perfect matching tools for all stages during an embedded development. One important part of these tools is covered with the in-circuit emulators designed for an efficient debugging of your application.

Other major advantages offered with the high-end features of our in-circuit emulators are tasks like to make sure that all time constraints are fulfilled by the application, to localize and remove bottlenecks or to realize the verification and the optimization of the software. The proper and guaranteed fitting of our systems grant invaluable synergies with the additional software tools for all the other development stages from the design up to the system end test.

To fit all the needs of the development and also to all budgets there are different systems with different features. The entry level systems are the MX-ST7 and MX-ST7-L. Notwithstanding the low price are important features like support of maximum speed, non-intrusive emulation, build in EEPROM programming, no use of application resources, a very convenient and intuitive user interface and the support of all popular compilers as a matter of course. Beyond it the variants AX-ST7-A, -B and -C offer the high-end features which makes the development to a highlight.

New Derivatives supported

Similar to our successful emulators for other architectures, we have maintained the same basic principle; the basic unit provides the functionality of the emulator, such as dual-ported emulation memory, trace buffer, trigger hardware and more. Only the amount of functionality depends on one of three models selected of the basic unit AX-ST7.

The AX-unit remains the same, even when different derivatives or even different types of controllers (M68HC05, M68HC08 or M68HC11) are emulated. Therefore, only a change of the external adaptation cable is necessary. Introduction of adaptation cables supports the growing number of new derivatives.



Unique Breakpoints

Our tools distinguish between breakpoints and triggers. Breakpoints are used to control the program flow from the viewpoint of a software engineer and therefore, are set in the program memory area (ROM or emulation memory).

Usually breakpoints are set automatically during a high-level language test by HiTOP. For this purpose, breakpoints always stop emulation before the instruction at the selected address has been executed. Otherwise, the debugger may stop inside a subroutine. This can cause confusion and doesn't enable the engineer to step over the call, which is what is intended. This is the reason almost all debuggers use software breakpoints. This works well, only when the program resides in emulation memory, but as soon as the program shows failures when running from ROM, this method fails.

No other way enables safe debugging, except using our unique hardware based unlimited breakpoints.

Powerful and modular

Powerful Triggers enable professional Tracing

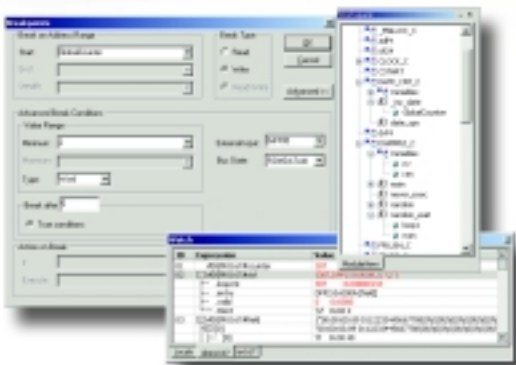
Four independent triggers control all bus events. Once a predefined signal combination is detected, the trigger can initiate several actions to be taken. Start or stop trace recording, freeze the trace buffer, start or stop a timer or simply break emulation.

Another method called "filtering" dramatically reduces the amount of gathered trace frames: the only frames that are stored are those that match a trigger condition. This, for example, allows for tracing of only critical ports, variables or program sections. With time stamps within each trace frame, it is possible to get time measurements for every sequence of selected events. Each trigger may also combine external signals of the application within bus events. Conversely, each occurrence of a trigger event will be signaled for controlling logic analyzers or an oscilloscope.

Analyze the Performance

Complex error conditions can be tracked with a special sequence logic that is used like a state machine. Triggers and combinations of them arm other triggers or enable actions specific for this state.

The ultimate AX-ST7 is equipped with a powerful Performance Analyzer. It is especially suited for finding bottlenecks of the application and very useful for gaining information on untested program code. This method is undoubtedly necessary for enlarging the software quality of your system.



HiTOP, Partner Tools and more ...

HiTOP is the universal user interface for all Hitex Development Tools. To get further information about HiTOP, software tools that link to HiTOP and the ORTI standard please refer to the brochures. You will find a PDF version on our web site or you can order by telephone

Technical Data

	MX-ST7L	MX-ST7	AX-ST7-A	AX-ST7-B	AX-ST7-C
Controller	ST7	ST7		ST7 and 8 bit Motorola	
Bus frequency	8 MHz	8 MHz	8 MHz	8 MHz	8 MHz
Low voltage	Yes	Yes	-	-	Yes
Dual ported emulation memory	64 k	64 k	64 k	256 k	256 k
Access on the fly	-	Yes	Yes	Yes	Yes
Protection	-	Yes	Yes	Yes	Yes
Breakpoints	64 k	64 k	64 k	256 k	256 k
Profiler	-	Yes	Yes	Yes	Yes
Trace	8 k	8 k	8 k	16 k	32 k
Access on the fly	Yes	Yes	Yes	Yes	Yes
Time stamp	Yes	Yes	Yes	Yes	Yes
HLL/Linetrace	Yes	Yes	Yes	Yes	Yes
Filter	-	Yes	Yes	Yes	Yes
External events	Yes	Yes	Yes	Yes	Yes
Logic analyzer trace	Yes	Yes	Yes	Yes	Yes
Trigger	1	4	2	4	4
Changeable on the fly	Yes	Yes	Yes	Yes	Yes
Event sequencer	-	Yes	Yes	Yes	Yes
Counter/timer	Yes	Yes	Yes	Yes	Yes
Filter for trace	-	Yes	Yes	Yes	Yes
Performance analysis	-	-	-	-	Yes
Code coverage	-	-	-	-	Yes
Power supply	external	external	internal	internal	internal
Host Interface	serial, PARA optional, USB optional				



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