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**REAL TIME EMULATION DEVELOPMENT TOOLS  
FOR ST6 MCU FAMILY**

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**HARDWARE FEATURES**

- Supports ST62 and ST63 family
- Real time emulation
- 32 KBytes of emulation memory
- Breakpoint on a single address or on an address area
- Break events can be defined on Program Space, Data space mixed with up to 4 external signals
- Availability of the internal break signal on OUT1 trigger output as a synchronisation signal, available even if break are disabled (but defined).
- 1K of real trace memory
- Tracing of up to 32 bits including 4 external signals

**Advance Information**

The forthcoming version of the Source Debugger will offer the following new features:

- Registers readable on the fly and refreshed while running the user program without cycle stealing
- Fully programmable external Synchronisation trigger signals, OUT1 and OUT2.
- Selective trace with the same powerful range of breaks and triggers.
- A STACK overflow breakpoint, enableable or disableable in addition to standard breakpoints

**SOFTWARE FEATURES**

- Symbolic debugger
- Windows based interface
- On-line assembler/disassembler
- Log files capable of storing any displayed screen
- Command files able to execute a set of debugger commands

### GENERAL DESCRIPTION

The ST6 Real Time Development System is an advanced hardware development system designed and configured to provide comprehensive support for the ST6 family of MCU's.

This new mainframe consists of a basic part, common to all ST6 devices, and one ST62 or ST63 subfamily dedicated board depending on the device to emulate. This new emulator is fully compatible with the existing dedicated boards, except for the ST638X and ST631XX devices which have been designed on two boards. Only the dedicated board needs to be changed to emulate a new device within the ST62/ST63 subfamilies.

The DOS-debugger can be run under the Microsoft Windows™ environment. The use of a parallel port allows a much faster communication transfer rate. The symbolic debugger, software part of the real time emulation tool, can be run on a PC, and is common to all ST62 and ST63 devices. The debugger uses a windowed menu driven interface, and enables the user to set the configuration of the emulator.

Once assembled, linked and debugged with the simulator, the application software is ready to be downloaded into the ST6-EMU. The device probe is connected to the application hardware. The development station performs a real-time emulation of the target device, thus allowing high performance testing and debugging of both application hardware and software.

The breakpoints allow the user to stop the MCU when the application software reaches selected addresses, and/or addresses within a selected

ranges, and/or on data fetch (or read, or write, or both) cycles. The user is then able to read and modify any register and memory location. An on-line assembler/disassembler is also available to ease debugging. The internal break signal is output on OUT1 triggers on the front panel of the emulator. This feature enables the user to count events using to external equipment, when optimising software for example, or to synchronise an oscilloscope when debugging hardware.

The logical analyser permanently records in real time on 32 bits: buses, flags, Bank registers and 4 external signals. It allows the user to display the last 1024 executed cycles. The displayed cycles are, either fetch, or fetch and data space accesses, chosen by a debugger command. Addresses, data, control/status bits and 4 user signals are displayed using mnemonic and user symbols. Log files offer the possibility to send any screen display to a text file. In particular, log files are very useful to save the contents of the logic analyser and/or the contents of data registers to be analysed or printed.

Command files can be used to execute a set of debugger commands in order to ease and speed up the emulation session.

A powerful help facility can be involved at any time to give additional information about the commands, the processor or the emulator.

When the program is fully debugged, the ST6 EPROM remote programming board can be used to program the emulation device with the INTEL hex format file produced by the linker.

**Figure 1. SDBST6 Command Summary**

|        |   |
|--------|---|
| ALL    | One Line Assembler                      |
| BASE   | Change base of numbers                  |
| BREAK  | Display/set breakpoint                  |
| CB     | Clear breakpoints                       |
| CMP    | Compare memory                          |
| DL     | Display memory in listing ASM form      |
| DM     | Display/change memory                   |
| DOS    | Branch to DOS                           |
| DR     | Display/change registers                |
| DS     | Display symbol table                    |
| FM     | Fill memory with pattern                |
| GO     | Start user program                      |
| GRAPH  | Return to GRAPHIC interface             |
| HELP   | Call HELP utility                       |
| HWTEST | Execute diagnostic test                 |
| LOAD   | Load memory from a file                 |
| LCONF  | Load data pages configuration           |
| MOVE   | Move memory block                       |
| NEXT   | Single/multi step mode                  |
| PM     | Display/change paged Data ROM locations |
| QUIT   | Abandon the program                     |
| RESET  | Reset ST6 core dedications              |
| SAVE   | Save memory into a file                 |
| SB     | Set address breakpoints                 |
| SCONF  | Save data pages configuration           |
| SEARCH | Search pattern in memory                |
| REM    | Put comment in a log file               |
| SET    | Set system options                      |
| SR     | Set register                            |
| TRACE  | Display traced execution                |
| USE    | Execute command file                    |
| WR     | Display current Working Register set    |
| UPLOAD | Copy ROMulator into HOST                |

**ORDERING INFORMATION**

| Sales Type   | Description   |
|--------------|---|
| ST626X-EMU2  | Complete emulator package for ST620X, ST621X, ST622X, ST625X and ST626X devices (including dedicated board and ST6-SW software package) |
| ST626X-DBE   | Separate dedicated board for ST620X, ST621X, ST622X, ST625X and ST626X devices  |
| ST624X-EMU2  | Emulator package for ST624X devices, without probes   |
| ST624X-DBE   | Separate dedicated board for ST624X devices   |
| ST6240-P/QFP | Probe for ST6240  |
| ST6242-P/QFP | Probe for ST6242  |
| ST6245-P/QFP | Probe for ST6245  |
| ST6240-EMU2  | Complete emulator package for ST6240 devices (including dedicated board and ST6-SW software package)                                    |
| ST6242-EMU2  | Complete emulator package for ST6242 devices (including dedicated board and ST6-SW software package)                                    |
| ST6245-EMU2  | Complete emulator package for ST6245 devices (including dedicated board and ST6-SW software package)                                    |
| ST628X-EMU2  | Emulator package for ST628X devices, without probes   |
| ST628X-DBE   | Separate dedicated board for ST628X devices   |
| ST6280-P/QFP | Probe for ST6280  |
| ST6285-P/QFP | Probe for ST6285  |
| ST6280-EMU2  | Complete emulator package for ST6280 devices (including dedicated board and ST6-SW software package)                                    |
| ST6285-EMU2  | Complete emulator package for ST6285 devices (including dedicated board and ST6-SW software package)                                    |

**Notes:** The emulator power supply can be adjusted to 220V or 110V

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