Superboard II Quick Reference

For the Briel Computers Superboard ///

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General Specifications	
CPU	65C02
Clock Speed	1 MHz
RAM	32 KB
ROM	10 KB
Keyboard	Integral 53-key
Video	Composite
Power Input	USB 5V host or power supply 1000mA or more
Serial Port Settings	9600 bps 8N1, no handshaking, no flow control

Memory Map

Address Range	Comments
$0000 - $00FF	Zero page RAM.
$0100 - $01FF	Stack RAM.
$0000 - $7FFF	RAM (32K Superboard ///).
$A000 - $BFFF	ROM (BASIC).
$D085 - $D39D	Video memory (25x25 mode).
$D080 - $D3FF	Video memory (32x28 mode).
$DF00	Keyboard (write row, read column). Decimal 57088.
$F000	6850 ACIA status/control register. Decimal 61440.
$F001	6850 ACIA data register. Decimal 61441.
$F800-$FFFF	ROM (OSI routines and monitor).

ROM Monitor Commands

Display: *AAAA DD*

In address mode, enter 4 character hex address. In data mode, enter 2 character hex data.

"/" enters data mode.
"." enters address mode.
<Return> (in data mode) advances to next address.
"L" (in address mode) loads from cassette tape/serial port.
"G" (in address mode) starts execution from current address mode.

Useful Routines

Address	Description
$000B,$000C	Address to call get argument of USR() function. Value is returned in $00AE,F.
$000D	Number of NULLs to send as per BASIC NULL command.
$000F	BASIC terminal width.
$0064	BASIC <Control>O flag.
$00FB	ROM monitor load flag(non-zero=load mode).
$00FC	ROM monitor contents of current address.
$00FE,$00FF	ROM monitor current address.
$0100	NMI address.
$01C0	IRQ address.
$0200	Cursor position for BASIC output is $D300 +($0200). Default (bottom left) is $65.
$0203	LOAD flag ($80=load from tape).
$0205	SAVE flag (0=not in save mode). In BASIC, POKE 517,0 to turn off save mode
$0212	BASIC <Control>C flag (non-zero=ignore <Control>C). Reset by RUN.
$023E,$023F	Address of BASIC USR() function.
$A274	BASIC warm start.
$BD11	BASIC cold start.
$BF2D	Send character in A to terminal screen. Handles CR, LF, etc.
$FCB1	Send character in A to ACIA.
$FD00	Get key from keyboard and return in A.
$FE00	ROM monitor entry point.
$FE80	Get character from ACIA and return in A.
$FEED	Calls $FD00.
$FF00	Reset address.
$FF69	Output character to screen via $BF2D, and if SAVE flag is non-zero, also to serial/tape.
$FFBA	Get key from keyboard, or if LOAD flag has high bit set, from serial/tape.
$FFEB	BASIC input routine. Via vector in $0218,9 calls $FFBA.
$FFEE	BASIC output routine. Via vector in $021A,B calls $FF69.
$FFFA,$FFFC	NMI vector.
$FFFC,$FFFD	Reset vector.
$FFFE,$FFFF	IRQ vector.

Microsoft BASIC

Commands: CONT, LIST, NEW, NULL, RUN

Statements: CLEAR, DATA, DEF, DIM, END, FN, FOR, GOSUB, GOTO, IF, INPUT, LET, LOAD, NEXT, NOT, NULL, ON, OR, POKE, PRINT, READ, REM, RESTORE, RETURN, SAVE, STEP, STOP, THEN, TO, WAIT, ?

Functions: ABS(), ASC(), ATN(), CHR$(), COS(), EXP(), FRE(), INT(), LEFT$(), LEN(), LOG(), MID$(), PEEK(), POS(), RIGHT$(), RND(), SGN(), SIN(), SPC(), SQR(), STR$(), TAB(), TAN(), USR(), VAL()

Operators: +, -, *, /, ^, NOT, AND, OR, =, <, >, <>, >=, <=

Editing:

<Shift>N	^ character	<Shift>+O	Erase last character
<Shift>+P	Erase current line	<Control>+C	Interrupt running program or LIST command
<Control>+O	Suspend output until typed again		

Boot Prompt

```
D/C/W/M ?_
| | | |
| | | └──→ ROM Monitor
| | └─────→ Warm start (does not clear any BASIC program)
| └───────→ Cold start (clears any BASIC program)
└─────────→ Disk boot (requires disk controller)
```

Miscellaneous

Default video is 25 chars x 25 lines. Power on with BREAK key down to get 32 chars x 28 lines. BASIC always uses 24x24.

Serial Port protocol: 9600 bps, 8N1, no flow control or hardware handshaking. For BASIC, use 50ms char delay, 200ms line delay.

Sample Linux commands to initialize serial port and send file:

```
stty -hup -clocal raw 9600 </dev/ttyUSB0
ascii-xfr -s -l 200 -c 50 program.bas  >/dev/ttyUSB0
```

25x25 Video Mode

Hex	Dec		Hex	Dec
D085	53381	□□□□□□□□□□□□□□□□□□□□□□□□□	53405	D09D
D0A5	53413	□□□□□□□□□□□□□□□□□□□□□□□□□	53437	D0BD
D0C5	53445	□□□□□□□□□□□□□□□□□□□□□□□□□	53469	D0DD
D0E5	53477	□□□□□□□□□□□□□□□□□□□□□□□□□	53501	D0FD
D105	53505	□□□□□□□□□□□□□□□□□□□□□□□□□	53533	D11D
D125	53541	□□□□□□□□□□□□□□□□□□□□□□□□□	53565	D13D
D145	53573	□□□□□□□□□□□□□□□□□□□□□□□□□	53597	D15D
D165	53605	□□□□□□□□□□□□□□□□□□□□□□□□□	53629	D17D
D185	53637	□□□□□□□□□□□□□□□□□□□□□□□□□	53661	D19D
D1A5	53669	□□□□□□□□□□□□□□□□□□□□□□□□□	53693	D1BD
D1C5	53701	□□□□□□□□□□□□□□□□□□□□□□□□□	53725	D1DD
D1E5	53733	□□□□□□□□□□□□□□□□□□□□□□□□□	53757	D1FD
D205	53765	□□□□□□□□□□□□□□□□□□□□□□□□□	53789	D21D
D225	53797	□□□□□□□□□□□□□□□□□□□□□□□□□	53821	D23D
D245	53829	□□□□□□□□□□□□□□□□□□□□□□□□□	53853	D25D
D265	53861	□□□□□□□□□□□□□□□□□□□□□□□□□	53885	D27D
D285	53893	□□□□□□□□□□□□□□□□□□□□□□□□□	53917	D29D
D2A5	53925	□□□□□□□□□□□□□□□□□□□□□□□□□	53949	D2BD
D2C5	53957	□□□□□□□□□□□□□□□□□□□□□□□□□	53981	D2DD
D2E5	53989	□□□□□□□□□□□□□□□□□□□□□□□□□	54014	D2FD
D305	54021	□□□□□□□□□□□□□□□□□□□□□□□□□	54045	D31D
D325	54053	□□□□□□□□□□□□□□□□□□□□□□□□□	54077	D33D
D345	54085	□□□□□□□□□□□□□□□□□□□□□□□□□	54109	D35D
D365	54117	□□□□□□□□□□□□□□□□□□□□□□□□□	54141	D37D
D385	54149	□□□□□□□□□□□□□□□□□□□□□□□□□	54172	D39D

32x28 Video Mode

Hex	Dec		Hex	Dec
D080	53376	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53407	D09F
D0A0	53408	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53439	D0BF
D0C0	53440	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53471	D0DF
D0E0	53472	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53503	D0FF
D100	53504	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53535	D11F
D120	53536	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53567	D13F
D140	53568	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53599	D15F
D160	53600	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53631	D17F
D180	53632	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53663	D19F
D1A0	53664	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53695	D1BF
D1C0	53696	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53727	D1DF
D1E0	53728	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53759	D1FF
D200	53760	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53791	D21F
D220	53792	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53823	D23F
D240	53824	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53855	D25F
D260	53856	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53887	D27F
D280	53888	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53919	D29F
D2A0	53920	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53951	D2BF
D2C0	53952	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	53983	D2DF
D2E0	53984	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	54016	D2FF
D300	54016	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	54047	D31F
D320	54048	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	54079	D33F
D340	54080	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	54111	D35F
D360	54112	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	54143	D37F
D380	54144	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	54175	D39F
D3A0	54176	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	54207	D3BF
D3C0	54208	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	54239	D3DF
D3E0	54240	□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□	54271	D3FF