

System09 on the Digilent Spartan 3 Starter board XC3S200 version.

Booting a RAM disk version of the Flex9 operating system.

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You will need Hyperterm or some equivalent terminal emulation program that implements Xmodem protocol with checksum over a RS232 COM port.

Connect the Digilent Spartan 3 starter board serial board to the PC COM Port.

Select the COM port with Hyperterm

Set the data word format to 8 data bits, 2 stop bits and no parity.

Set the Baud rate to 57.6KBaud

Synthesize the System09 design for the Spartan 3 starter board and download it to the FPGA board.

If the system is working correctly, System09 will print out a message on the screen and prompt with a ">" character.

Use the "L" key to load the RAM Disk version of Flex9

On Hyperterm click on Transfer->Send text file and send the file ...\\System09\\src\\flex9\\FLEX9RAM.s19

After a short period of time downloading the S19 file the monitor program should prompt for the next command.

Enter "UX" to transfer the RAM Disk image using Xmodem protocol.

On Hyperterm select Transfer->Send File

In the Protocol drop down menu, select Xmodem

Click on the Browse button for the File name and navigate to ...\\System09\\src\\dsk\\DISK_RAM.dsk

A window should pop up indicating the progress of the download and the number of packets sent

When the transfer is complete, you will have to click on the cancel button to manually terminate the download.

You will then have to return to the monitor program and enter "UB" to patch the drivers and boot Flex.

Flex should then prompt for the date.

Enter the date as "MM,DD,YY <enter>" (note that Flex9 is not year 2000 compliant).

Flex should then prompt with "+++" indicating it is ready to accept commands.

Set the scroll escape character to a space by typing “TTYSET ES=1B<enter>” or “TTYSET ES=20<enter>”

The Escape character is the key you press to allow the screen to keep scrolling.

TTYSET Escape character is entered as a two hexadecimal digit number that corresponds to the ASCII code.

Entering the “DIR 0<enter>” command should list the files on the System RAM disk.

To format a working RAM disk drive, return to the monitor program by entering “MON<enter>”

Format a Working RAM disk by typing the monitor command “UF”.

Return to FLEX by setting the PC to the FLEX9 Warm start entry point at \$CD03, and running Flex i.e.:

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<ctrl>P CD03
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G

Flex should prompt with “+++”

Entering the Flex Command “DIR” or “DIR 1” should list the files on the working drive.

Since the working drive has just been formatted there will be no files.

There is a modem program on the system disk for uploading and downloading programs, but as of writing this document, I’m not sure that the program has been patched to operate correctly.

You can reset System09 by pressing the BTN3 button on the FPGA board, and that should return you to the Sys09bug monitor program.

Manuals for the Flex operating system may be found at the Flex user Group web site.

<http://www.evenson-consulting.com/flexusergroup/default.htm>