QuickStart Guide
RDK-SAT-248-2F

WinSystems' RDK development kits are designed to minimize the learning curve for our Single Board Computer products. These kits provide first time users with a familiar operating environment and the basic components necessary to get an embedded system up and running quickly. Several kits are available with slight variations for different CPU boards.

SDK development kits are also available and may be more suitable for certain applications. Please contact the Application Engineering Group for more information on development kit options.

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1 ROM-DOS 6.22 Distribution Diskette (3.5" 720KB)
1 ROM-DOS 6.22 Users Manual
1 FLASH-ED1202-D02 2MB Disk-On-Chip Flash-Disk
1 CBL-180-6 DB9 Female to Female Null Modem cable
1 CBL-162-1 Multi-I/O Cable (Keyboard, Serial, Parallel)
1 PS-50W-1 Power Supply with Harness
1 PCM-POST Diagnostic Card
1 PCM-POST Users Manual
1 XT-AT Handbook

NOTE : This development kit is compatible with the SAT-DX single board computer (Sold separately).

BOARD CONFIGURATION

If the single board computer and the development kit are ordered together, the flash disk will be installed and tested prior to shipment. The jumper configuration will be preset to the following :

J5 = OPEN	J6 = OPEN
J9 = 5-6, 7-8, 11-12, 13-14, 17-18	
J14 = OPEN	J16 = OPEN
J22 = OPEN	J23 = 1-2
J24 = 1-2	J26 = 1-2
J27 = OPEN	J28 = 1-2
J29 = 2-3	J30 = 2-3
J31 = N/A	J32 = 6-8, 9=10

NOTE : The preset jumper configuration allows the SAT-DX board to boot from the Flash-Disk and to operate as directed in this guide. The configuration may need to be altered for your specific application. Please see the SAT-DX Operations Manual for details.

GETTING STARTED

This section will help you boot the CPU and transfer your application to the Flash-Disk. This guide assumes that you are using a desktop PC for development of your embedded application (Referred to as the PC in the remainder of this document).

1. Connect the 50-pin multi-I/O cable (CBL-162-1) to the J2 connector on the SAT-DX board.

2. To use the serial console connect one end of the NULL modem cable (CBL-180-6) to the second DB9 connector (COMM2) of the multi-I/O cable. Connect the other end of the NULL modem cable to a serial port on your PC.

3. Connect the power cable from the PS-50W-1 to the SAT-DX at J25.

4. Connect an AT compatible keyboard to the Multi-I/O cable to use the on-board keyboard controller. This is required to access and make any changes to the BIOS settings.

5. If using a video display module, install it onto the PC/104 connector. A video controller is required to access or change the BIOS settings. Be sure that all pins are properly inserted before applying power.

SCON2 - SERIAL CONSOLE UTILITY

In order to use the serial console and file transfer utilities, you will need to start the Serial Console utility (SCON1 or SCON2) located on the SBC C: drive.

The AUTOEXEC.BAT file on the flash disk starts SCON2 by default. This configures COM2 on the SBC as the serial console port. If you wish to setup COM1 as the serial console, edit the AUTOEXEC.BAT file replacing SCON2 with SCON1. SCON2 can be removed from the AUTOEXEC.BAT if you wish to disable the serial console.

You can use the DOS copy command to replace the AUTOEXEC.BAT file as follows :

```
copy con c:\autoexec.bat
```

This command will open a file on C: named AUTOEXEC.BAT and copy your keyboard entries into it. You will be asked if you wish to overwrite the existing AUTOEXEC.BAT. Press 'Y' and ENTER to replace the current file. Each time you press ENTER, a line will be added to the file. To end the copy command press the F6 key and ENTER. If you make a mistake while copying to the AUTOEXEC.BAT file, simply end the copy and start over. When the system is rebooted the new AUTOEXEC.BAT will be executed.

NOTE : You should double check the AUTOEXEC.BAT before rebooting the system. Typographical errors can cause the system to hang (or appear to hang) during boot-up. To view the contents of the AUTOEXEC.BAT enter :

```
type autoexec.bat
```

SERIAL CONSOLE

1. Load the ROM-DOS software onto your PC by copying all of the files on the ROM-DOS diskette to an appropriate directory. For example :

```
md rom-dos
copy a:\*.* \rom-dos
```

2. Go to the ROM-DOS directory you just created and execute the COMM.EXE console program with the following command.

```
comm /b38400
```

The screen will be cleared and the bottom line will appear as :

```
COMM v2.0 Press F1 for Help   Com1: 38400 N81 Echo Off CR
```

Pressing the F1 key will display the Help Screen. The COMM Console utility options are detailed later in this quickstart guide.

3. Turn on the power to the SAT-DX. The single board computer will boot and present the following message on your PC's console screen :

```
WinSystems Remote Console Version 1.02
(C) Copyright 1994-1995, All Rights Reserved

C:\
```

The Flash-Disk contains the necessary ROM-DOS system files for booting the single board computer. To list the files contained on the Flash-Disk enter the command :

```
dir
```

To view the contents of the AUTOEXEC.BAT file enter the command :

```
type autoexec.bat
```

The SBC will display :

```
scon2
prompt $p$g
Path c:\;c:\dos
```

FILE TRANSFERS

Files can be uploaded/downloaded to the SBC by running the TRANSFER utility program from the Serial Console. The path and filename specified when using the Transfer utility correspond to file storage on the SBC. The path and filename for the PC file are specified separately.

A fictitious filename, SAMPLE.XXX will be used in the following examples to illustrate the command format and system responses. Substitute the path and name of your application file for this example.

To transfer a file to the SBC system, you must start the transfer program and specify the name of the destination file that will be created on the target system. For example :

```
transfer /r c:\sample.xxx
```

In this example, SAMPLE.XXX will be created on the C: drive of the target SBC when the transfer is complete.

The Transfer program will respond with:

```
Receiving sample.xxx
```

Press the PgUp key on your PC keyboard. The COMM console utility will display this prompt :

```
Upload which file :
```

Type in the path and filename on your PC for the file you wish to upload to the SBC. For example :

```
c:\urdir\sample.xxx
```

The system will prompt you for a transfer protocol:

```
Upload C:\URDIR\SAMPLE.XXX ASCII or Xmodem (A or X)
```

Type the letter 'X' to indicate Xmodem. The utility will display an estimated transfer time. The letter 'T' will be replicated across the screen indicating the transfer is in progress. The word 'DONE' will appear when the transfer has been successfully completed. Once the transfer is complete the system will beep and you will be returned to the ROM-DOS prompt.

At the C:\ prompt type :

```
dir
```

The file that was transferred should now be present on the SBC's Flash Disk.

These examples should provide you with a general understanding of the Serial Console and Transfer utilities. If you need further assistance contact the WinSystems Application Engineering Group.

BIOS SETUP MENUS

A video display and PC-AT keyboard are required to access and change the BIOS settings. Please refer to page 3-1 of the operations manual for details on accessing the BIOS Setup Menus and the available options.

COMM CONSOLE UTILITY

The COMM communications program allows a PC to act as a console for the remote ROM-DOS system. It also allows for XMODEM protocol uploading and downloading of files to a ROM-DOS system when used in conjunction with the Transfer utility.

The COMM program is invoked from the MS-DOS command line as :

```
COMM options
```

the options can be any combination of the following separated by spaces.

/B#nnnn Where nnnn is one of the supported baud rates of 300, 1200, 2400, 4800, 9600, 19200, or 38400.

/COMn Where n is the communications port number. Allowed values are either 1 or 2.

/8N1 Communications parameters for 8-bit character with no parity checking and 1 stop bit (Default)

/7E1 Communications parameters for 7-bit character with even parity and 1 stop bit. (Not usable for XMODEM file transfer)

In addition to the command line switches shown above the COMM utility will also use an environment variable for startup parameters. For example the line :

```
SET COMM = /COMM2 /B2400 /7E1
```

would cause the COMM utility to alter it's default setting upon next invocation to those specified by the COMM environment variable. Options given on the command line however, always override the environment variable's settings.

Once COMM has loaded there are a series of commands available to control it's operation as well as to allow the uploading and downloading of binary and ASCII files to ROM-DOS and/or computer bulletin boards. All but two of the commands utilize a 2-key combination using the ALT key in conjunction with the command key. A summary of the command key sequences is given here :

ALT-B toggles through the available baud rates. Repeated pressing of this combination will cycle through all supported baud rates.

ALT-C Clears the console screen.

ALT-D When used with a modem with an AT command set, allows the entry of a phone number for autodialing. Pressing Enter will redial the previous number. Pressing ESCAPE aborts the command.

ALT-E Toggles the duplex function between full with no echo, to half with echo.

ALT-H when used with a modem with an AT command set, instructs the modem to hang up the line.

ALT-P Gives the option of setting the communications port number and/or the communications parameters. ESCAPE will abort the command.

ALT-T Toggles the CR/LF option. When enabled the ENTER key will generate a 2-character Carriage Return/Line Feed combination. When disabled only a CR (Carriage Return) will be sent when the ENTER key is pressed.

ALT-X Exits the COMM utility and returns to MS-DOS.

PG-UP Is the upload file command . After pressing this command key, the user is prompted for the file name and transfer protocol (XMODEM or ASCII). ESCAPE will abort the command at any time, even during the transfer.

PG-DN Is the download file command. The user will again be prompted for the filename and transfer protocol. The ESCAPE key may be used to abort the command at any time.