

CU00167-00

Upgrading a SHMM to release 1.3.1

Step 1

Download the new 1.3.1 kernel and root filesystem (rfs) images:

[sentry.kernel](#)

[sentry.rfs](#)

These images need to be placed on a TFTP server machine that is network reachable from the SHMM module.

Step 2

Power on your SHMM based hardware and interrupt the boot-up process by pressing the space-bar on the serial port console of the ShMM:

```
ARMboot code: 10f00000 -> 10f15a8c
DRAM Configuration:
Bank #0: 10000000 16 MB
Flash: 8 MB
Hit any key to stop autoboot:  0
ShMM #
ShMM #
```

Step 3

Make sure the network settings for your ShMM are such that it can see the TFTP server on your network:

```
ShMM # printenv serverip ipaddr netmask gateway

serverip=192.168.0.7
ipaddr=192.168.0.2
netmask=255.255.0.0
gateway=192.168.0.1

ShMM#
```

If any of these need changing, do it as follows:

```
ShMM # setenv serverip 192.168.0.88
ShMM # saveenv

Un-Protected 1 sectors
Erasing sector  0 ... Erasing sector at 0x  800000
ok.
Saving Environment to Flash...done.
Protected 1 sectors
```

Step 4

TFTP download into RAM the sentry.kernel image:

```
ShMM # tftp 10400000 sentry.kernel
Link: 100MBit Full Duplex.
ARP broadcast 1
eth addr: 00:0a:e6:26:ae:6b
TFTP from server 192.168.0.7; our IP address is 192.168.0.2
Filename 'sentry.kernel'.
Load address: 0x10400000
Loading: #####
#####
###
done
Bytes transferred = 990992 (f1ec0 hex)
ShMM #
```

Record the number of bytes downloaded... this will be needed for step 6

Step 5

Erase the flash area that contains the kernel image

```
ShMM # erase 1:9-24
Erase Flash Sectors 9-24 in Bank # 1:
Erasing sector 9 ... Erasing sector at 0x 20000
ok.
Erasing sector 10 ... Erasing sector at 0x 30000
ok.
...
...
Erasing sector 24 ... Erasing sector at 0x ....
ok.
Done.
ShMM #
```

Step 6

Program the kernel image in flash: (note that we use the # bytes transfered from last command as third argument):

```
ShMM # cp.b 10400000 20000 f1ec0
Copy to Flash... done.
ShMM #
```

Step 7

TFTP download into RAM the sentry.rfs image, erase flash, and copy image to flash

```
ShMM # tftp 10400000 sentry.rfs
Link: 100MBit Full Duplex.
ARP broadcast 1
eth addr: 00:0a:e6:26:ae:6b
TFTP from server 192.168.0.7; our IP address is 192.168.0.2
Filename 'sentry.rfs'.
Load address: 0x10400000
Loading: #####
#####
#####
#####
#####
#####
done
Bytes transferred = ..... (2d7040 hex)
```

```
ShMM # erase 1:25-70
Erase Flash Sectors 25-70 in Bank # 1:
Erasing sector 25 ... Erasing sector at 0x ...
ok.
...
Erasing sector 70 ... Erasing sector at 0x ...
ok.
```

```
ShMM # cp.b 10400000 120000 2d7040
Copy to Flash... done.
ShMM #
```

Step 8

Erase the JFFS filesystems:

```
ShMM # erase 2:1-70
```

```
Erasing sector 1 ... Erasing sector at 0x 802000
ok.
...
...
Erasing sector 70 ... Erasing sector at 0x bf0000
ok.
Done.
ShMM #
```

Step 9

Boot the new system:

```
ShMM # run bootcmd
## Booting image at 00020000 ...
Image Name: uClinux-2.4.17
Image Type: ARM Linux Kernel Image (uncompressed)
Data Size: 990928 Bytes = 967 kB = 0 MB
Load Address: 10008000
Entry Point: 10008000
Verifying Checksum ... OK
Loading Kernel Image ... OK
## Loading Ramdisk Image at 00120000 ...
Image Name: sentry ROMFS Ramdisk Image
Image Type: ARM Linux RAMDisk Image (uncompressed)
Data Size: 2849792 Bytes = 2783 kB = 2 MB
Load Address: 00000000
Entry Point: 00000000
Verifying Checksum ... OK
Loading Ramdisk to 00120040, end 003d7c40 ... OK

Starting kernel ...

Linux version 2.4.17-uc0 (root@collaboration) (gcc version 3.2) #1 Wed Jan 28 15:11:17 PST 2004
Processor: ARM/VLSI ARM 7 TDMI revision 0
Architecture: TI TMS320VC5471
On node 0 totalpages: 4096
zone(0): 0 pages.
zone(1): 4096 pages.
zone(2): 0 pages.
Kernel command line: console=ttyS0,9600 root=/dev/ram0 IP1ADDR=192.168.1.3 IP1DEVICE=eth1 IPADDR=192
.168.0.2 IPDEVICE=eth0 HOSTNAME=sentry GATEWAY=192.168.0.1 RC2=/etc/rc.carrier3 FLASH_RESET=n PASSWO
RD_RESET=n LOGGING=ram START_RC2_DAEMONS=n RC_IFCONFIG=n
Calibrating delay loop... 6.80 BogomIPS
Memory: 16MB = 16MB total
Memory: 15028KB available (877K code, 175K data, 44K init)
Dentry-cache hash table entries: 2048 (order: 2, 16384 bytes)
Inode-cache hash table entries: 1024 (order: 1, 8192 bytes)
Mount-cache hash table entries: 512 (order: 0, 4096 bytes)
Buffer-cache hash table entries: 1024 (order: 0, 4096 bytes)
Page-cache hash table entries: 4096 (order: 2, 16384 bytes)
POSIX conformance testing by UNIFIX
Linux NET4.0 for Linux 2.4
Based upon Swansea University Computer Society NET3.039
Initializing RT netlink socket
DCSS: successfully started.
Starting kswapd
JFFS2 version 2.1. (C) 2001, 2002 Red Hat, Inc., designed by Axis Communications AB.
i2c-core.o: i2c core module
i2c-dev.o: i2c /dev entries driver module
i2c-algo-bit.o: i2c bit algorithm module
i2c-c547x_bit.o: i2c C547x (bit mode) module
i2c-dev.o: Registered 'i2c of C547x (bit mode)' as minor 0
i2c_algo_c5471_init: i2c c5471 algorithm module
i2c-c5471.o: C5471 I2C adapter module
i2c-dev.o: Registered 'C5471 I2C adapter #0' as minor 1
i2c-dev.o: Registered 'C5471 I2C adapter #1' as minor 2
pty: 256 Unix98 ptys configured
Serial driver version 5.05c (2001-07-08) with no serial options enabled
ttyS00 at 0xffff1000 (irq = 6) is a ST16650
ttyS01 at 0xffff0800 (irq = 7) is a ST16650
C5471 SPI driver, irq 13.
Dallas Semiconductor DS1337 Real-Time Clock driver
EEPROM driver v1.0
ledman: Copyright (C) SnapGear, 2000-2002.
ARM GPIO driver. (C) 2003 Pigeon Point Systems
WDT driver for ShMM.
block: 64 slots per queue, batch=16
RAMDISK driver initialized: 16 RAM disks of 8192K size 1024 blocksize
```

```
enet: Phy @ 0x0, type 0x001378e2
eth0: C5471 ENET Version 0.1, 00:50:c2:22:53:90
SMSC LAN91C111 Driver (v2.0), (Linux Kernel 2.4 + Support for Odd Byte) 09/24/01 -      by Pramod Bh
ardwaj (pramod.bhardwaj@smc.com)
eth1: SMC91C11xFD (rev:1) at 0x1000300 IRQ:12 MEMSIZE:8192b NOWAIT:0 ADDR: 00:50:c2:22:53:91
VC5471: 0x00800000 at 0x00800000
Search for id:(01 22f9) interleave(1) type(2)
Found: AMD Am29LV320B
Flash on VC547x: Found 1 x16 devices at 0x0 in 16-bit mode
number of JEDEC chips: 1
VC5471: using static partition definition
Creating 3 MTD partitions on "Flash on VC547x":
0x00000000-0x00010000 : "ARMboot environment"
0x00010000-0x00100000 : "ETC"
0x00100000-0x00400000 : "VAR"
NET4: Linux TCP/IP 1.0 for NET4.0
IP Protocols: ICMP, UDP, TCP
IP: routing cache hash table of 512 buckets, 4Kbytes
TCP: Hash tables configured (established 1024 bind 2048)
NET4: Unix domain sockets 1.0/SMP for Linux NET4.0.
RAMDISK: romfs filesystem found at block 0
RAMDISK: Loading 2783 blocks [1 disk] into ram disk... done.
VFS: Mounted root (romfs filesystem) readonly.
Freeing init memory: 44K
init started: BusyBox v0.60.5 (2004.01.28-23:10+0000) multi-call binary
mktime: cannot convert RTC time to UNIX time
/etc/rc: Mounting filesystems...
/etc/rc: Mounted /proc
/etc/rc: Mounted /dev/pts
/etc/rc: Mounted /dev/mtdblock3 to /var
/etc/rc: Mounted ram disk to /var/log
/etc/rc: Started syslogd and klogd
/etc/rc: Mounted ram disk to /var/tmp
/etc/rc: Setting hostname sentry
/etc/rc: /dev/mtdblock2 appears to be empty ... restoring from factory /etc...
/etc/rc: Mounted /dev/mtdblock2 to /etc
/etc/rc: /etc/hosts updated with sentry 192.168.0.2 entry
/etc/rc: Starting inetd...
/etc/rc: Calling /etc/rc.carrier3
Booting:
    freq:100MHz
    size:14356 words
    addr:0x10c00000
/etc/rc.carrier3: Updating /etc/profile.sentry with IP settings
/etc/rc.carrier3: RC2 daemons not started by request

sentry login:
```