NUC700 MKROM USER'S MANUAL

Revision History:

Revision	Date	Comment
1.0	Mar 25, 2009	Initial Version

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1 Mkrom

NUC700 uClinux BSP provides a utility to make a whole new firmware image which could be burned into the flash ROM by flash programmers.

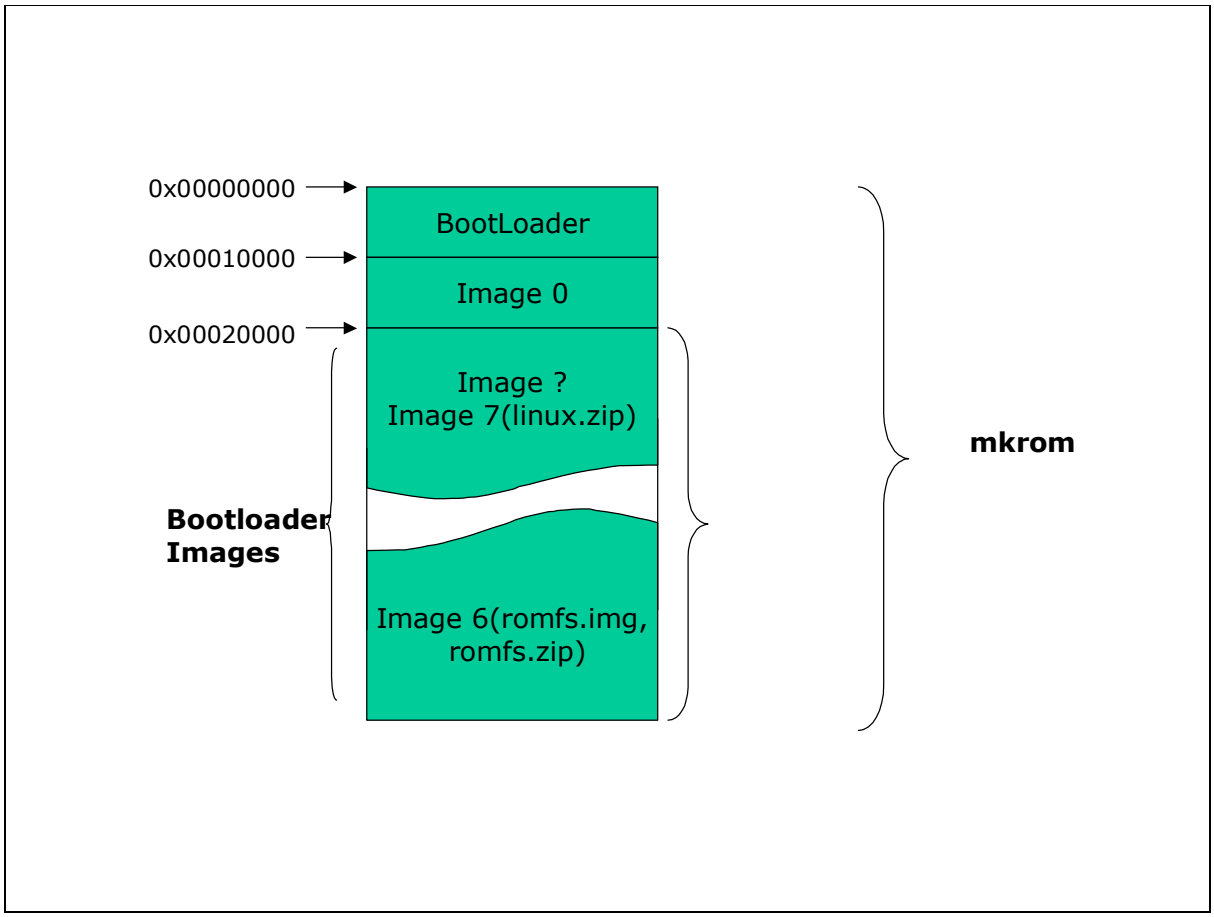
Mkrom is used to generate the whole new ROM/Flash image. It packs bootloader, bootloader configuration, and other images e.g. linux.bin, romfs.img into single binary file.

Mkrom reads mkrom.ini to get the bootloader and image information to build a whole new binary image.

There are two versions of mkrom.exe, one for NUC740, the other for NUC710 and NUC745.

From the following figure, the *mkrom* combined the bootloader, image 0, image 7, and image 6 as a whole new firmware image.

Figure 1-1 The images made by mkrom


0x00000000
0x00010000
0x00020000
BootLoader
Image 0
Image ?
Image 7(linux.zip)
Image 6(romfs.img,
romfs.zip)
Bootloader
Images
mkrom

1.1 Configuration file for MKROM

Mkrom generates a ROM image according to a configuration file. The default configuration file name is *mkrom.ini*. It should be placed in the same directory with mkrom.exe. The configuration file also could be given by argument, such as,

> mkrom user_config.ini.

The format of the configuration must be followed and it is case sensitive. It includes four section types. These types

are "[Target Image]", "[Boot Image]", "[Boot Info]", and "[Image N]". Where N could be 1~7, such as,

[Image 1], [Image 2], etc.

The sequence of each section is fixed. That is [Target Image] section first, [Boot Image] second, [Boot Info] third, then [Image N].

The sequence of "[Image N]" in configuration file must follow to its base address in the final ROM image. The [Image N] section with lower base address must be placed in front of the [Image N] section with higher base address.

Boot info section for NUC740 bootloader is different from bootloader of NUC710 and NUC745. Table below listed the attributes of NUC710/NUC745 bootloader.

Setting	Value	Comment
mac=	xx:xx:xx:xx:xx:xx	MAC address
ip=	aa.bb.cc.dd	IP address
dhcp=	0/1	DHCP client setting. Setting 1 to enable, 0 to disable
cache=	0/1	Cache setting. Setting 1 to enable cache, 0 to disable cache
buffer_base=		The base address of the buffer

		used by bootloader
buffer_size=		"The size of the buffer used by bootloader
baudrate=		UART baud rate setting
usb=	0/1	USB device setting. Setting 1 to enable, 0 to disable
serial_number=		Bootloader serial number

This table listed the attributes of NUC740 bootloader:

Setting	Value	Comment
net_mac=	0/1	Set the MAC interface used for TFTP download
phy=	0/1/2	Configure on board PHY type. 0 is DAVICOM DM9161, 1 is IC PLUS IP175A, 2 is MARVELL 88E6052
mac0=	xx:xx:xx:xx:xx:xx	Interface 0 MAC address
mac1=	xx:xx:xx:xx:xx:xx	Interface 1 MAC address
ip0=	aa.bb.cc.dd	Interface 0 IP address
ip1=	aa.bb.cc.dd	Interface 1 IP address
dhcp=	0/1	DHCP client setting. Setting 1 to enable, 0 to disable

cache=	0/1	Cache setting. Setting 1 to enable cache, 0 to disable cache
buffer_base=		The base address of the buffer used by bootloader
buffer_size=		The size of the buffer used by bootloader
baudrate=		UART baud rate setting
rmii=	0/1	Set to 1 to enable RMII interface, 0 to enable MII interface
serial_number=		Bootloader serial number

[Image N Image="] section (The value of N could be 1~7)

Setting	Value	Comment
Image=	.\linux.zip	The file name of the image
Name=	linux.zip	The alias name of the image"
Base=	0xXXXXXXXX	The base address of this image in the W90N740 system"
Load=	0xXXXXXXXX	"The load address of this image in the W90N740 system"
Active=	1: Active Image 0: Inactive Image	The IMAGE_ACTIVE attribute. Setting 1 to enable this attribute, 0 to disable it"
Copy to RAM=	1: Copy to RAM on	The IMAGE_COPY2ROM

	loading 0: No need to copy it to RAM	attribute. Setting 1 to enable this attribute, 0 to disable it
Execution=	1: Executable Image 0: Not executable Image	The IMAGE_EXEC attribute. Setting 1 to enable this attribute, 0 to disable it"
Compressed=	1: Compressed Image 0: Normal Image	The IMAGE_COMPRESSED attribute. Setting 1 to enable this attribute, 0 to disable it"
File=	1: File 0:	The IMAGE_FILE attribute. Setting 1 to enable this attribute, 0 to disable it"
No Footer=	1: Create footer 0:: Don't create footer	If this field set to 1, not footer will be create for this image, so boot loader will not be able to find it. Set this option to 1 for pre build JFFS2 partitions of uClinux kernel.

Sample configuration files (mkrom.ini) could be found in the same directory with mkrom.exe.