LinkStation/TeraStation/玄箱/ARM/TS-XL/U-Boot

https://mizupc8.bio.mie-u.ac.jp:443/pukiwiki/index.php?LinkStation/TeraStation/%E7%8E%84%E7%AE%B1/ARM/TS-XL/U-Boot

This page is about U-Boot of TS-XL. [†]

- This page is about U-Boot of TS-XL.
- U-Boot
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- Default environment variables
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U-Boot [†]

U-Boot is used as the boot loader in LinkStation / TeraStation / KuroBox using ARM CPU.

Version [†]

The time stamp is June 4, 2009.

```
Marvell>> version

U-Boot 1.1.4 (Jun  4 2009 - 11:11:38) Marvell version: 3.3.5
```

U-Boot splash screen [†]

```
CPU =  MV78

Checking DATA BUS OK!
Checking ADDRESS BUS OK!

Checking DATA BUS
Checking ADDRESS BUS
BUFFALO U-BOOT Start !!!
 ** LOADER **
 ** BUFFALO BOARD: DB-MV78100-A-BP LE (CFG_ENV_ADDR=fff80000)


U-Boot 1.1.4 (Jun  4 2009 - 11:11:38) Marvell version: 3.3.5
Buffalo Version: 2.06-1.00

U-Boot code: 00600000 -> 0066FFF0  BSS: -> 00684D34

Soc: MV78100 A0 (DDR2)
CPU running @ 800Mhz L2 running @ 266Mhz
SysClock = 400Mhz , TClock = 166Mhz

DRAM CAS Latency = 5 tRP = 5 tRAS = 19 tRCD=5
DRAM CS[0] base 0x00000000   size 512MB
DRAM Total size 512MB  64bit width
 CPU =  MV78

Checking DATA BUS OK!
Checking ADDRESS BUS OK!

Checking DATA BUS
Checking ADDRESS BUS
BUFFALO U-BOOT Start !!!
 ** LOADER **
 ** BUFFALO BOARD: DB-MV78100-A-BP LE (CFG_ENV_ADDR=fff80000)


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Soc: MV78100 A0 (DDR2)
CPU running @ 800Mhz L2 running @ 266Mhz
SysClock = 400Mhz , TClock = 166Mhz

DRAM CAS Latency = 5 tRP = 5 tRAS = 19 tRCD=5
DRAM CS[0] base 0x00000000   size 512MB
DRAM Total size 512MB  64bit width
[512kB@fff80000] Flash: 512 kB
Addresses 8M - 0M are saved for the U-Boot usage.
Mem malloc Initialization (8M - 7M): Done
NAND: 512 MB
```

```
RAM: 512 MB

CPU 0: ARM926 (Rev 0)
```

```
Streaming enabled
Write allocate disabled
FPU initialized to Run Fast Mode.
enaDCPref <NULL>
enaICPref <NULL>
setL2CacheWT no
setL2Size256K no
disL2Ecc no
disL2Prefetch yes
disL2Cache no
env finished


USB 0: host mode
USB 1: host mode
USB 2: host mode
PCI 0: PCI Express Root Complex Interface
PEX interface detected Link X4
PEX 4: interface detected no Link.
Net: egiga0 [PRIME], egiga1
buffalo_change_power_status > Read 0x7a(swpoff_reached_halt)
buffalo_change_power_status > Writing 0x5c(swpoff_uboot_passed)

Marvell Serial ATA Adapter
Integrated Sata device found
Found adapter at bus 0, device 1 ... Scanning channels
[1 0 0]: Enable DMA mode
  Device 2 @ 1 0:
Model: Hitachi HDP725050GLA360          Firm: GM4OA5CA Ser#:      GEA534RF2ES3WA
            Type: Hard Disk
            Supports 48-bit addressing
            Capacity: 476940.0 MB = 465.7 GB (976773168 x 512)
[1 1 0]: Enable DMA mode
  Device 3 @ 1 1:
Model: Hitachi HDP725050GLA360          Firm: GM4OA5CA Ser#:      GEA534RF2ES1GA
            Type: Hard Disk
            Supports 48-bit addressing
            Capacity: 476940.0 MB = 465.7 GB (976773168 x 512)
[1 2 0]: Enable DMA mode
  Device 4 @ 1 2:
Model: Hitachi HDP725050GLA360          Firm: GM4OA5CA Ser#:      GEA534RF2ESBWA
            Type: Hard Disk
            Supports 48-bit addressing
            Capacity: 476940.0 MB = 465.7 GB (976773168 x 512)
[1 3 0]: Enable DMA mode
  Device 5 @ 1 3:
Model: Hitachi HDP725050GLA360          Firm: GM4OA5CA Ser#:      GEA534RF2ESANA
            Type: Hard Disk
            Supports 48-bit addressing
            Capacity: 476940.0 MB = 465.7 GB (976773168 x 512)

MAC Address on eth0  : 00:1d:73:xx:xx:xx

Signature version    : 1.00
Signature MACAddress : 00:1d:73:xx:xx:xx

2294752 bytes read
   Image Name:   Linux-2.6.22.18
   Created:      2009-07-17   4:57:28 UTC
   Image Type:   ARM Linux Kernel Image (uncompressed)
   Data Size:    2294688 Bytes =  2.2 MB
   Load Address: 00008000
   Entry Point:  00008000

8857821 bytes read
   Image Name:   initrd
   Created:      2009-07-17   4:58:52 UTC
   Image Type:   ARM Linux RAMDisk Image (gzip compressed)
   Data Size:    8857757 Bytes =  8.4 MB
   Load Address: 00000000
   Entry Point:  00000000

Signature version    : 1.00
Signature MACAddress : 00:1d:73:xx:xx:xx

2294752 bytes read
   Image Name:   Linux-2.6.22.18
   Created:      2009-07-17   4:57:28 UTC
   Image Type:   ARM Linux Kernel Image (uncompressed)
   Data Size:    2294688 Bytes =  2.2 MB
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   Entry Point:  00000000
```

```
Signature version    : 1.00
Signature MACAddress : 00:1d:73:xx:xx:xx
```
```
2294752 bytes read
    Image Name:   Linux-2.6.22.18
    Created:      2009-07-17   4:57:28 UTC
    Image Type:   ARM Linux Kernel Image (uncompressed)
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    Image Type:   ARM Linux RAMDisk Image (gzip compressed)
    Data Size:    8857757 Bytes =  8.4 MB
    Load Address: 00000000
    Entry Point:  00000000

 ***** Debug *****
diskinfo [0] .IsMyDisk = 1
diskinfo[0].uImage_date = 1247806648
diskinfo[0].initrd_date = 1247806732
diskinfo [1] .IsMyDisk = 1
diskinfo[1].uImage_date = 1247806648
diskinfo[1].initrd_date = 1247806732
diskinfo [2] .IsMyDisk = 1
diskinfo[2].uImage_date = 1247806648
diskinfo[2].initrd_date = 1247806732
diskinfo [3] .IsMyDisk = 1
diskinfo[3].uImage_date = 1247806648
diskinfo[3].initrd_date = 1247806732
newest_fw_dev is updated to 2

Booting from Device 2
hit any key to switch tftp boot.
Hit any key to stop autoboot:  0
Hit any key to stop autoboot:  0

2294752 bytes read

8857821 bytes read
```

Command list [†]

```
Marvell>> help
?       - alias for 'help'
FSdel   - del a file from the Flash MV FS
FSdir   - ls the Flash MV FS
FSformat- format the Flash MV FS
FSrun   - Load an exe file from the Flash MV FS and run it
FStftp  - tftp a file to the Flash MV FS
FStftpe - tftp an exe file to the Flash MV FS
FStype  - cat file from the Flash MV FS
autoscr - run script from memory
base    - print or set address offset
bdinfo  - print Board Info structure
boot    - boot default, i.e., run 'bootcmd'
bootd   - boot default, i.e., run 'bootcmd'
bootext2    dev:boot_part1,boot_part2 addr boot_image linux_dev_name
bootm   - boot application image from memory
bootp   - boot image via network using BootP/TFTP protocol
bubt    - Burn an image on the Boot Flash.
chpart  - change active partition
cmp     - memory compare
cmpm    - Compare Memory
coninfo - print console devices and information
cp      - memory copy
cpumap - Display CPU memory mapping settings.
crc32   - checksum calculation
date    - get/set/reset date & time
dclk    - Display the MV device CLKs.
ddimm  - Display SPD Dimm Info
dimer_test   change  blightness test
diskboot- boot from IDE device
disp_test    LCD TEST
dma     - Perform DMA
echo    - echo args to console
eeprom - EEPROM sub-system
erase   - erase FLASH memory
ext2load- load binary file from a Ext2 filesystem
ext2ls  - list files in a directory (default /)
fi      - Find value in the memory.
flinfo  - print FLASH memory information
fsinfo  - print information about filesystems
fsload  - load binary file from a filesystem image
fun_test
g       - start application at cached address 'addr'(default addr 0x40000)
gettemp
go      - start application at address 'addr'
help    - print online help
icrc32  - checksum calculation
ide     - IDE sub-system
iloop   - infinite loop on address range
imd     - i2c memory display
iminfo  - print header information for application image
imls    - list all images found in flash
imm     - i2c memory modify (auto-incrementing)
imw     - memory write (fill)
inm     - memory modify (constant address)
iprobe  - probe to discover valid I2C chip addresses
ir      - reading and changing MV internal register values.
itest   - return true/false on integer compare
led_test       - loop LED
loadb   - load binary file over serial line (kermit mode)
loads   - load S-Record file over serial line
loop    - infinite loop on address range
ls      - list files in a directory (default /)
map     - Diasplay address decode windows
```

```
map      - Display address decode windows
md       - memory display
me       - PCI master enable

miconput      - put data to mincon
mm       - memory modify (auto-incrementing)
mp       - map PCI BAR
mtdparts- define flash/nand partitions
mtest    - simple RAM test
mw       - memory write (fill)
nand     - NAND sub-system
nand_test   - nand test
nboot    - boot from NAND device
nfs      - boot image via network using NFS protocol
nm       - memory modify (constant address)
pci      - list and access PCI Configuration Space
phyRead - Read PCI-E Phy register
pciePhyWrite    - Write PCI-E Phy register
phyRead - Read Phy register
phyWrite        - Write Phy register
ping     - send ICMP ECHO_REQUEST to network host
printenv- print environment variables
protect - enable or disable FLASH write protection
pset hdd(led) [No.] on(off)
rarpboot- boot image via network using RARP/TFTP protocol
reset   - Perform RESET of the CPU
resetenv        - Return all environment variable to default.
run     - run commands in an environment variable
saveenv - save environment variables to persistent storage
se       - PCI Slave enable
POWER_STATUS_REBOOTING                     1        0x18
setenv  - set environment variables
sflash  - read, write or erase the external SPI Flash.
sg       - scanning the PHYs status
signature    - Get and display disk signature.
sleep   - delay execution for some time
sp       - Scan PCI bus.
spdcpy  - Copy Dimm 0 SPD to Dimm 1 SPD
tftpboot- boot image via network using TFTP protocol
version - print monitor version
```

デフォルトの環境変数 [↑]

autoboot を止めた場合 [↑]

```
Marvell>> printenv
bootargs=console=ttyS0,115200 mtdparts=physmapped-flash.0:32m(root)
baudrate=115200
loads_echo=0
ipaddr=192.168.11.150
serverip=192.168.11.1
rootpath=/mnt/ARM_FS/
netmask=255.255.255.0
fw_image_base=0x0
fw_image_size=0x0
console=console=ttyS0,115200
CASset=min
MALLOC_len=1
ethprime=egiga0
bootargs_end=:::DB78xx0:eth0:none
standalone=fsload 0x2000000 $(image_name);setenv bootargs $(console) root=/dev/mtdblock0 rw ip=$(ipaddr):$(serverip)$(bootargs_end); bootm 0x2000000;
ethmtu=1500
eth1mtu=1500
ethact=egiga0
ethaddr=00:1D:73:DF:04:D8
eth1addr=00:1D:73:DF:04:D9
EnableNandBoot=1
buffalo_ver=BOOTVER=2.06
buffalo_minor_ver=BOOT_MINOR_VER=1.00
build_time=11:11:30
initrd=initrd.buffalo
kernel=uImage.buffalo
bootargs_base=console=ttyS0,115200
bootargs_root=root=/dev/sda2 rw initrd=0x00900040,15M panic=5
def_tftp=tftp 0x02000000 $(kernel); tftp 0x00900000 $(initrd); setenv bootargs $(bootargs_base) $(bootargs_root) $(buffalo_ver) tftpboot=yes; bootm 0x02000000 0x00900000
stdin=serial
stdout=serial
stderr=serial
mainlineLinux=no
enaMonExt=no
enaFlashBuf=yes
enaCpuStream=yes
enaWrAllo=no
enaFPU=yes
pexMode=RC
disL2Cache=no
setL2CacheWT=no
disL2Prefetch=yes
setL2Size256K=no
disL2Ecc=no
sata_dma_mode=yes
netbsd_en=no
vxworks_en=no
bootdelay=3
disaMvPnp=no
usb0Mode=host
usb1Mode=host
usb2Mode=host
mtdids=nand0=nand
mtdparts=mtdparts=nand:0x02000000(nboot),0x1E000000(nroot)
partition=nand0,0
mtddevnum=0
mtddevname=nboot
filesize=8728dd
bootcmd=chpart nboot;fsload 0x02000000 $(kernel);fsload 0x00900000 $(initrd);bootm 0x02000000 0x00900000

Environment size: 1551/4092 bytes
```

tftpboot の場合 [†]

```
Marvell>> printenv
bootargs=console=ttyS0,115200 mtdparts=physmapped-flash.0:32m(root)
baudrate=115200
loads_echo=0
ipaddr=192.168.11.150
serverip=192.168.11.1
rootpath=/mnt/ARM_FS/
netmask=255.255.255.0
fw_image_base=0x0
fw_image_size=0x0
console=console=ttyS0,115200
CASset=min
MALLOC_len=1
ethprime=egiga0
bootargs_end=:::DB78xx0:eth0:none
standalone=fsload 0x2000000 $(image_name);setenv bootargs $(console) root=/dev/mtdblock0 rw ip=$(ipaddr):$(serverip)$(bootargs_end); bootm 0x2000000;
ethmtu=1500
eth1mtu=1500
ethact=egiga0
ethaddr=00:1D:73:xx:xx:xx
eth1addr=00:1D:73:xx:xx:yy
EnableNandBoot=1
buffalo_ver=BOOTVER=2.06
buffalo_minor_ver=BOOT_MINOR_VER=1.00
build_time=11:11:30
initrd=initrd.buffalo
kernel=uImage.buffalo
bootargs_base=console=ttyS0,115200
bootargs_root=root=/dev/sda2 rw initrd=0x00900040,15M panic=5
def_tftp=tftp 0x02000000 $(kernel); tftp 0x00900000 $(initrd); setenv bootargs $(bootargs_base) $(bootargs_root) $(buffalo_ver) tftpboot=yes; bootm 0x02000000 0x00900000
stdin=serial
stdout=serial
stderr=serial
mainlineLinux=no
enaMonExt=no
enaFlashBuf=yes
enaCpuStream=yes
enaWrAllo=no
enaFPU=yes
pexMode=RC
disL2Cache=no
setL2CacheWT=no
disL2Prefetch=yes
setL2Size256K=no
disL2Ecc=no
sata_dma_mode=yes
netbsd_en=no
vxworks_en=no
bootdelay=3
disaMvPnp=no
usb0Mode=host
usb1Mode=host
usb2Mode=host
filesize=8728DD
force_tftp=1
bootcmd=tftp 0x02000000 $(kernel); tftp 0x00900000 $(initrd); setenv bootargs $(bootargs_base) $(bootargs_root) $(buffalo_ver) tftpboot=yes; bootm 0x02000000 0x00900000

Environment size: 1503/4092 bytes
```

その他 [†]

bdinfo [†]

```
Marvell>> bdinfo
arch_number = 0x00000210
env_t       = 0x00000000
boot_params = 0x00000100
DRAM bank   = 0x00000000
-> start    = 0x00000000
-> size     = 0x20000000
DRAM bank   = 0x00000001
-> start    = 0x00000000
-> size     = 0x00000000
DRAM bank   = 0x00000002
-> start    = 0x00000000
-> size     = 0x00000000
DRAM bank   = 0x00000003
-> start    = 0x00000000
-> size     = 0x00000000
ethaddr     = 00:1D:73:xx:xx:xx
ip_addr     = 192.168.11.150
baudrate    = 115200 bps
```

coninfo [†]

```
Marvell>> coninfo
List of available devices:
serial   80000003 SIO stdin stdout stderr
```

flinfo [†]

```
Marvell>> flinfo

Bank # 1:
Flash Base Address  : 0xfff80000
```

```
Flash Model        : ST M25P40
Manufacturer ID    : 0x20
```

```
Device Id          : 0x2013
Sector Size        : 64K
Number of sectors  : 8
Page Size          : 256
Write Protection   : Off
```

fsinfo [↑]

```
Marvell>> fsinfo
### filesystem type is JFFS2
Compression: NONE
        frag count: 2632
        compressed sum: 10379411
        uncompressed sum: 10379411
Compression: ZERO
        frag count: 0
        compressed sum: 0
        uncompressed sum: 0
Compression: RTIME
        frag count: 0
        compressed sum: 0
        uncompressed sum: 0
Compression: RUBINMIPS
        frag count: 0
        compressed sum: 0
        uncompressed sum: 0
Compression: COPY
        frag count: 0
        compressed sum: 0
        uncompressed sum: 0
Compression: DYNRUBIN
        frag count: 0
        compressed sum: 0
        uncompressed sum: 0
Compression: ZLIB
        frag count: 311
        compressed sum: 947988
        uncompressed sum: 1258126
Marvell>>
```

純正ディスクのチェック [↑]

純正以外のHDDを利用すると、U-Boot起動時に以下のメッセージが表示されるので、何か純正かどうかのチェックをしているようだ。

- 純正ディスク

```
Marvell Serial ATA Adapter
Integrated Sata device found
Found adapter at bus 0, device 1 ... Scanning channels
[1 0 0]: Enable DMA mode
  Device 2 @ 1 0:
Model: Hitachi HDP725050GLA360           Firm: GM4OA5CA Ser#:       GEA534RF2ES3WA
          Type: Hard Disk
          Supports 48-bit addressing
          Capacity: 476940.0 MB = 465.7 GB (976773168 x 512)
[1 1 0]: Enable DMA mode
  Device 3 @ 1 1:
Model: Hitachi HDP725050GLA360           Firm: GM4OA5CA Ser#:       GEA534RF2ES1GA
          Type: Hard Disk
          Supports 48-bit addressing
          Capacity: 476940.0 MB = 465.7 GB (976773168 x 512)
[1 2 0]: Enable DMA mode
  Device 4 @ 1 2:
Model: Hitachi HDP725050GLA360           Firm: GM4OA5CA Ser#:       GEA534RF2ESBWA
          Type: Hard Disk
          Supports 48-bit addressing
          Capacity: 476940.0 MB = 465.7 GB (976773168 x 512)
[1 3 0]: Enable DMA mode
  Device 5 @ 1 3:
Model: Hitachi HDP725050GLA360           Firm: GM4OA5CA Ser#:       GEA534RF2ESANA
          Type: Hard Disk
          Supports 48-bit addressing
          Capacity: 476940.0 MB = 465.7 GB (976773168 x 512)

MAC Address on eth0  : 00:1d:73:xx:xx:xx

Signature version    : 1.00
Signature MACAddress : 00:1d:73:xx:xx:xx
```

- 非純正の場合

```
Marvell Serial ATA Adapter
Integrated Sata device found
Found adapter at bus 0, device 1 ... Scanning channels
[1 0 0]: Enable DMA mode
  Device 2 @ 1 0:
Model: Hitachi HDT721010SLA360           Firm: ST6OA3AA Ser#:       STF607MS0124YK
          Type: Hard Disk
          Supports 48-bit addressing
          Capacity: 953869.7 MB = 931.5 GB (1953525168 x 512)

MAC Address on eth0  : 00:1d:73:xx:xx:xx

Signature version    : 0.00
Signature MACAddress :

    This is not my HDD!!!
    Anyway load images...
```

各ディスクの MBR (sector 0)をダンプしてみると、興味深い結果が得られた。

- 純正

```
Disk #4
*** sector 0 of disk sdb
00000000  01 00 00 00 00 00 00 00  20 00 00 00 00 00 00 00  |........ .......|
00000010  00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00  |................|
00000020  64 69 73 6b 34 00 00 00  30 30 3a 31 64 3a 37 73  |disk4...00:1d:73|
00000030  3a xx xx xx 30 34 3a 64  38 00 00 00 61 72 72 61  |:xx:xx:xx...arra|
00000040  79 31 00 00 6e 6f 72 6d  61 6c 00 00 00 00 00 00  |y1..normal......|
00000050  00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00  |................|
*
000001c0  01 00 ee fe ff ff 01 00  00 00 2f 60 38 3a 00 00  |........../`8:..|
000001d0  00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00  |................|
*
000001f0  00 00 00 00 00 00 00 00  00 00 00 00 00 00 55 aa  |..............U.|
```

- 非純正

```
*** sector 0 of disk sdb
00000000  00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00  |................|
*
000001c0  01 00 ee fe ff ff 01 00  00 00 af 6d 70 74 00 00  |...........mpt..|
000001d0  00 00 00 00 00 00 00 00  00 00 00 00 00 00 00 00  |................|
*
000001f0  00 00 00 00 00 00 00 00  00 00 00 00 00 00 55 aa  |..............U.|
```

純正ディスクにはオフセット 0x20 以降に Ether の MAC アドレスなどが書き込まれている。また、0x00 に 0x01 が、0x08 に 0x20 が書かれている。これも何かに関係する値なのか

HDDブート †

[HDDブート](へ)へ

NANDブート †

HDDを全部はずして起動すると、自動的にNANDブートになった。しかし、JFFSからのカーネルとinitrd の読み込みに非常に時間がかかった。

```
  CPU =  MV78

Checking DATA BUS OK!
Checking ADDRESS BUS OK!

Checking DATA BUS
Checking ADDRESS BUS
BUFFALO U-BOOT Start !!!
 ** LOADER **
 ** BUFFALO BOARD: DB-MV78100-A-BP LE (CFG_ENV_ADDR=fff80000)


U-Boot 1.1.4 (Jun  4 2009 - 11:11:38) Marvell version: 3.3.5
Buffalo Version: 2.06-1.00

U-Boot code: 00600000 -> 0066FFF0  BSS: -> 00684D34

Soc: MV78100 A0 (DDR2)
CPU running @ 800Mhz L2 running @ 266Mhz
SysClock = 400Mhz , TClock = 166Mhz

DRAM CAS Latency = 5 tRP = 5 tRAS = 19 tRCD=5
DRAM CS[0] base 0x00000000   size 512MB
DRAM Total size 512MB  64bit width
[512kB@fff80000] Flash: 512 kB
Addresses 8M - 0M are saved for the U-Boot usage.
Mem malloc Initialization (8M - 7M): Done
NAND:512 MB

CPU 0: ARM926 (Rev 0)

Streaming enabled
Write allocate disabled
FPU initialized to Run Fast Mode.
enaDCPref <NULL>
enaICPref <NULL>
setL2CacheWT no
setL2Size256K no
disL2Ecc no
disL2Prefetch yes
disL2Cache no
env finished


USB 0: host mode
USB 1: host mode
USB 2: host mode
PCI 0: PCI Express Root Complex Interface
PEX interface detected Link X4
PEX 4: interface detected no Link.
Net:   egiga0 [PRIME], egiga1
buffalo_change_power_status > Read 0x71(normal_state)
buffalo_change_power_status > Writing 0x5c(swpoff_uboot_passed)

Marvell Serial ATA Adapter
Integrated Sata device found
Found adapter at bus 0, device 1 ... Scanning channels

HDD is not found
Trying NAND boot
partition changed to nand0,0
### JFFS2 loading 'uImage.buffalo' to 0x2000000
Scanning JFFS2 FS: . done.
### JFFS2 load complete: 2294752 bytes loaded to 0x2000000

   Image Name:   Linux-2.6.22.18
   Created:      2009-07-17   4:57:28 UTC
```

```
  Image Type:    ARM Linux Kernel Image (uncompressed)
  Data Size:     2294688 Bytes =  2.2 MB
  Load Address: 00008000
  Entry Point:  00008000

### JFFS2 loading 'initrd.buffalo' to 0x900000
### JFFS2 load complete: 8857821 bytes loaded to 0x900000

  Image Name:    initrd
  Created:       2009-07-17   4:58:52 UTC
  Image Type:    ARM Linux RAMDisk Image (gzip compressed)
  Data Size:     8857757 Bytes =  8.4 MB
  Load Address: 00000000
  Entry Point:  00000000

hit any key to switch tftp boot.
Hit any key to stop autoboot:  0
Hit any key to stop autoboot:  0
partition changed to nand0,0
### JFFS2 loading 'uImage.buffalo' to 0x2000000
### JFFS2 load complete: 2294752 bytes loaded to 0x2000000
### JFFS2 loading 'initrd.buffalo' to 0x900000
### JFFS2 load complete: 8857821 bytes loaded to 0x900000
<<stop_sound>>
## Booting image at 02000000 ...
  Image Name:    Linux-2.6.22.18
  Created:       2009-07-17   4:57:28 UTC
  Image Type:    ARM Linux Kernel Image (uncompressed)
  Data Size:     2294688 Bytes =  2.2 MB
  Load Address: 00008000
  Entry Point:  00008000
  Verifying Checksum ... OK
OK
call do_bootm_linux
## Loading Ramdisk Image at 00900000 ...
  Image Name:    initrd
  Created:       2009-07-17   4:58:52 UTC
  Image Type:    ARM Linux RAMDisk Image (gzip compressed)
  Data Size:     8857757 Bytes =  8.4 MB
  Load Address: 00000000
  Entry Point:  00000000
  Verifying Checksum ... OK

Starting kernel ...

CONFIG_BUFFALO_PLATFORM ---
Uncompressing Linux........................................................................................................................ done, booting the ke
Linux version 2.6.22.18 (root@build2.dd-hot24.nas.buffalo.local) (gcc version 4.2.0 20070413 (prerelease)) #539 Fri Jul 17 13:57:12 JST 2009
CPU: ARM926EJ-S [41159260] revision 0 (ARMv5TE), cr=00053977
Machine: Feroceon-MV78XX0
Using UBoot passing parameters structure
u.mv_uboot.env_addr is 0xfff80000. Using tag's value.
Memory policy: ECC disabled, Data cache writeback
CPU0: D VIVT write-back cache
CPU0: I cache: 32768 bytes, associativity 4, 32 byte lines, 256 sets
CPU0: D cache: 32768 bytes, associativity 4, 32 byte lines, 256 sets
Built 1 zonelists.  Total pages: 130048
Kernel command line: console=ttyS0,115200 mtdparts=physmapped-flash.0:32m(root)
PID hash table entries: 2048 (order: 11, 8192 bytes)
Console: colour dummy device 80x30
Dentry cache hash table entries: 65536 (order: 6, 262144 bytes)
Inode-cache hash table entries: 32768 (order: 5, 131072 bytes)
Memory: 512MB 0MB 0MB 0MB = 512MB total
Memory: 506368KB available (4180K code, 319K data, 128K init)
Mount-cache hash table entries: 512
CPU: Testing write buffer coherency: ok
NET: Registered protocol family 16

CPU 0, CPU Interface
-------------
SDRAM_CS0.... ....base 00000000, size 512MB
SDRAM_CS1.... ....disable
SDRAM_CS2.... ....disable
SDRAM_CS3.... ....disable
DEVICE_CS0... ....base f8000000, size  32MB
DEVICE_CS1... ....base fe000000, size   1MB
DEVICE_CS2... ....base fc000000, size   1MB
DEVICE_CS3... ....no such
DEV_BOOCS.... ....base fff00000, size 512KB
DEVICE_SPI... ....base fff00000, size 512KB
PEX0_IO...... ....base f2000000, size   8MB
PEX0_MEM0.... ....base c8000000, size  64MB
PEX1_IO...... ....base f3000000, size   8MB
PEX1_MEM0.... ....base cc000000, size  64MB
PEX2_IO...... ....no such
PEX2_MEM0.... ....no such
PEX3_IO...... ....base f5000000, size   8MB
PEX3_MEM0.... ....base d4000000, size  64MB
PEX4_IO...... ....base f6000000, size   8MB
PEX4_MEM0.... ....base d8000000, size  64MB
PEX5_IO...... ....no such
PEX5_MEM0.... ....no such
PEX6_IO...... ....no such
PEX6_MEM0.... ....no such
PEX7_IO...... ....no such
PEX7_MEM0.... ....no such
CRYPT_ENG..... ....base f7000000, size   2MB
INTER_REGS... ....base f1000000, size   1MB

  Marvell Development Board (LSP Version 2.0.2_MV78XX0)-- DB-MV78100-A-BP-BUFFALO  Soc: MV78100 A0 LE

 Detected Tclk 166666667 and SysClk 400000000
Marvell USB EHCI Host controller #0: 8118c600
Marvell USB EHCI Host controller #1: 8118c400
Marvell USB EHCI Host controller #2: 8118c200
PEX0 interface detected Link X4
PEX4 interface detected no Link.
PCI: bus0: Fast back to back transfers disabled
SCSI subsystem initialized
Time: orion_clocksource clocksource has been installed.
NET: Registered protocol family 2
IP route cache hash table entries: 16384 (order: 4, 65536 bytes)
TCP established hash table entries: 65536 (order: 7, 524288 bytes)
```

```
TCP bind hash table entries: 65536 (order: 6, 262144 bytes)
TCP: Hash tables configured (established 65536 bind 65536)
TCP reno registered
checking if image is initramfs...it isn't (no cpio magic); looks like an initrd
Freeing initrd memory: 8650K
RTC registered.
MICON ctrl (C) BUFFALO INC. V.1.00 installed.
Buffalo Gpio Control Driver (C) BUFFALO INC. Ver.0.02 installed.
>BuffaloCpuInterrupts_init
Buffalo CPU Inerupts Driver (C) BUFFALO INC. Ver.0.01 alpha1 installed.
MICON V2 (C) BUFFALO INC. V.1.00 installed.
UPSDRV (C) BUFFALO INC. V.1.00 installed.
  OMRON contact type ups shutdown support enabled!
Kernel event proc (C) BUFFALO INC. V.1.00 installed.
Buffalo RTC Driver (C) BUFFALO INC. Ver.1.00 (RS5C372) installed.
Buffalo GPIO SATA Hotplug Event Driver (C) BUFFALO INC. Ver.1.00 installed.
Use the XOR engines (acceleration) for enhancing the following functions:
   o RAID 5 Xor calculation
   o kernel memcpy
   o kenrel memzero
Number of XOR engines to use: 2
cesadev_init(8001237c)
mvCesaInit: sessions=640, queue=64, pSram=f7000000
VFS: Disk quotas dquot_6.5.1
Dquot-cache hash table entries: 1024 (order 0, 4096 bytes)
JFFS2 version 2.2. (NAND) Â© 2001-2006 Red Hat, Inc.
SGI XFS with ACLs, large block numbers, no debug enabled
SGI XFS Quota Management subsystem
io scheduler noop registered (default)
io scheduler anticipatory registered
io scheduler deadline registered
io scheduler cfq registered
Serial: 8250/16550 driver $Revision: 1.90 $ 4 ports, IRQ sharing disabled
serial8250.0: ttyS0 at MMIO 0xf1012000 (irq = 12) is a 16550A
serial8250.1: ttyS1 at MMIO 0xf1012100 (irq = 13) is a 16550A
serial8250.2: ttyS2 at MMIO 0xf1012200 (irq = 14) is a 16550A
RAMDISK driver initialized: 3 RAM disks of 32768K size 1024 blocksize
loop: module loaded
Load Marvell Ethernet Driver
   o Cached descriptors in DRAM
   o DRAM SW cache-coherency
   o Single RX Queue support - ETH_DEF_RXQ=0
   o Single TX Queue support - ETH_DEF_TXQ=0
   o TCP segmentation offload enabled
   o Receive checksum offload enabled
   o Transmit checksum offload enabled
   o Network Fast Processing (Routing) supported
   o Proc tool API enabled
   o Rx descripors: q0=128
   o Tx descripors: q0=532
   o Loading network interface:
eth0 eth1
Network Fast Processing Disabled
mvFpRuleDb (80ac0000): 16384 entries, 65536 bytes
mvSataInitAdapter : regVal changed(0x0000ff10)
scsi0 : Marvell SCSI to SATA adapter
scsi1 : Marvell SCSI to SATA adapter
scsi2 : Marvell SCSI to SATA adapter
scsi3 : Marvell SCSI to SATA adapter
Integrated Sata device found
mvSataInitAdapter : regVal changed(0x00000010)
scsi4 : Marvell SCSI to SATA adapter
scsi5 : Marvell SCSI to SATA adapter
SPI Serial flash detected @ 0xfff00000, 512KB (8sec x 64KB)
cmdlinepart partition parsing not available
     Write size    : 0x00000800
     OOB size      : 0x00000040
     Erase size    : 0x00020000
NAND device: Manufacturer ID: 0x20, Chip ID: 0xdc (ST Micro NAND 512MiB 3,3V 8-bit)
Scanning device for bad blocks
Bad eraseblock 2415 at 0x12de0000
cmdlinepart partition parsing not available
Using static partition definition
Creating 2 MTD partitions on "nand_mtd":
0x00000000-0x02000000 : "nboot"
0x02000000-0x20000000 : "nroot"
mice: PS/2 mouse device common for all mice
md: raid0 personality registered for level 0
md: raid1 personality registered for level 1
raid6: int32x1    115 MB/s
raid6: int32x2    130 MB/s
raid6: int32x4    133 MB/s
raid6: int32x8     98 MB/s
raid6: using algorithm int32x4 (133 MB/s)
md: raid6 personality registered for level 6
md: raid5 personality registered for level 5
md: raid4 personality registered for level 4
raid5: measuring checksumming speed
   arm4regs  :   824.400 MB/sec
   8regs     :   742.000 MB/sec
   32regs    :   822.400 MB/sec
raid5: using function: arm4regs (824.400 MB/sec)
device-mapper: ioctl: 4.11.0-ioctl (2006-10-12) initialised: dm-devel@redhat.com
dm_crypt using the OCF package.
ip_tables: (C) 2000-2006 Netfilter Core Team
TCP cubic registered
NET: Registered protocol family 1
NET: Registered protocol family 17
VFP support v0.3: implementor 41 architecture 1 part 10 variant 9 rev 0
md: Autodetecting RAID arrays.
md: autorun ...
md: ... autorun DONE.
RAMDISK: Compressed image found at block 0
VFS: Mounted root (ext2 filesystem).
---- in linuxrc ---
Version 1.00 2008/ 7/ 1
Sun Nov  1 16:37:40 JST 2009
CheckDevices
LibSys_GetUsbDiskStartNum : Usb device not found(/sys/block/sda/device). Returning 1
grep: /var/tmp/devlink: No such file or directory
ls: /sys/block/sd?/device: No such file or directory
linuxrc:choose operation (timeout 4[s])
 1:RamRoot 2:sda1 2:sda2 other:HddRoot  ? -HddRoot-
```

```
-- rebuild mdadm.conf for BOOT, ROOTFS --
mdadm: cannot open /dev/disk?_1: No such file or directory
mdadm: cannot open /dev/disk?_2: No such file or directory
mdadm: cannot open /dev/disk?_5: No such file or directory
mdadm: No devices listed in conf file were found.
-- setup max error counts --
/sys/block/md0/md/maxerr_cnt is setted to 20
Starting :fsck_disks(boot) ...        [Failed. ]
Starting :mount(boot) ...             EXT3-fs: unable to read superblock
EXT2-fs: unable to read superblock
EXT3-fs: unable to read superblock
EXT2-fs: unable to read superblock
[Failed. ]
-- rebuild mdadm.conf for BOOT, ROOTFS --
mdadm: cannot open /dev/disk?_1: No such file or directory
mdadm: cannot open /dev/disk?_2: No such file or directory
mdadm: cannot open /dev/disk?_5: No such file or directoEXT3-fs: unable to read superblock
ry
mdadm: No deEXT2-fs: unable to read superblock
vices listed in conf file were found.
-- setup max error counts --
/sys/block/EXT3-fs: unable to read superblock
md0/md/maxerr_cnEXT2-fs: unable to read superblock
t is setted to 20
/sys/block/md1/md/maxerr_cnt is setted to 20
/usr/local/lib/libmd: line 278: /sys/block/md1/md/maxerr_cnt: No such file or directory
/sys/block/md10/md/maxerr_cnt is setted to 20
/usr/local/lib/libmd: line 278: /sys/block/md10/md/maxerr_cnt: No such file or directory
mount: mounting /dev/md1 on /mnt failed: Input/output error
mount: mounting /dev/md1 on /mnt failed: Input/output error
md: md0 stopped.
mdadm: stopped /md: md1 stopped.
dev/md0
md: md10 stopped.
mdadm: stopped /dev/md1
mdadm: stopped /dev/md10
umount: cannot open /proc/mounts
Freeing init memory: 128K
init started: BusyBox v1.7.0 (2007-10-15 19:49:46 IST)
starting pid 383, tty '': '/etc/init.d/rcS'
--- rcStart (initrd) ---
=== checkroot.sh ===
chmod: /home: No such file or directory
grep: /var/tmp/devlink: No such file or directory
ls: /sys/block/sd?/device: No such file or directory
Unable to find swap-space signature
swapon: /dev/md10: Invalid argument
create dir : /home
create dir : /var/www
=== create_devlink.sh ===
ls: /sys/block/sd?/device: No such file or directory
=== startSysMd.sh ===
-- rebuild mdadm.conf for BOOT, ROOTFS --
mdadm: cannot open /dev/disk?_1: No such file or directory
mdadm: cannot open /dev/disk?_2: No such file or directory
mdadm: cannot open /dev/disk?_5: No such file or directory
mdadm: No devices listed in conf file were found.
-- setup max error counts --
/sys/block/md0/md/maxerr_cnt is setted to 20
/sys/block/md1/md/maxerr_cnt is setted to 20
/sys/block/md10/md/maxerr_cnt is setted to 20
=== fwupdate.sh ===
umount: cannot umount /boot: Invalid argument
mkdir: cannot create directory '/boot': File exists
EXT3-fs: unable to read superblock
EXT2-fs: unable to read superblock
mount: mounting /dev/md0 on /boot failed: Input/output error
=== closeSysMd.sh ===
md: md0 stopped.
mdadm: stopped /md: md1 stopped.
dev/md0
md: md10 stopped.
mdadm: stopped /dev/md1
mdadm: stopped /dev/md10
=== sethostname.sh ===
configure files from Buffalo parameters.
=== restore_config.sh ===
-- rebuild mdadm.conf for BOOT, ROOTFS --
mdadm: cannot open /dev/disk?_1: No such file or directory
mdadm: cannot open /dev/disk?_2: No such file or directory
mdadm: cEXT3-fs: unable to read superblock
annot open /dev/EXT2-fs: unable to read superblock
disk?_5: No such file or directory
mdadm: No devices listed in conf file were found.
-- setup max error counts --
/sys/block/md0/md/maxerr_cnt is setted to 20
mount: mounting /dev/md0 on /boot failed: Input/output error
Restore previous configuration files
/bin/tar: /boot/conf_save.tgz: Cannot open: No such file or directory
/bin/tar: Error is not recoverable: exiting now
/bin/tar: Child returned status 2
/bin/tar: Error exit delayed from previous errors
/bin/tar: /boot/conf_save.tgz: Cannot open: No such file or directory
/bin/tar: Error is not recoverable: exiting now
/bin/tar: Child returned status 2
/bin/tar: Error md: md0 stopped.
exit delayed fromd: md1 stopped.
m previous errormd: md10 stopped.
s
unzip  fail.
umount: cannot umount /boot: Invalid argument
rootfs on / type rootfs (rw)
/dev/root.old on / type ext2 (rw)
proc on /proc type proc (rw)
sysfs on /sys type sysfs (rw)
devpts on /dev/pts type devpts (rw)
/dev/ram1 on /mnt/ram type tmpfs (rw)
  PID  Uid        VSZ Stat Command
    1 root       3364 S   init
    2 root            SW< [kthreadd]
    3 root            SWN [ksoftirqd/0]
    4 root            SW< [events/0]
    5 root            SW< [khelper]
```

```
   37 root          SW< [kblockd/0]
   52 root          SW  [crypto]
   53 root          SW  [crypto_ret]
   56 root          SW  [pdflush]
   57 root          SW  [pdflush]
   58 root          SW< [kswapd0]
   59 root          SW< [aio/0]
   60 root          SW< [xfslogd/0]
   61 root          SW< [xfsdatad/0]
  253 root          SW< [scsi_eh_0]
  254 root          SW< [scsi_eh_1]
  255 root          SW< [scsi_eh_2]
  256 root          SW< [scsi_eh_3]
  261 root          SW< [scsi_eh_4]
  262 root          SW< [scsi_eh_5]
  266 root          SW< [mtdblockd]
  283 root          SW< [kcryptd/0]
  382 root      3364 S   init
  383 root      2444 S   /bin/sh /etc/init.d/rcS
  654 root      2896 R   /bin/sh /etc/init.d/restore_config.sh start
  675 root      3368 R   ps
mdadm: stopped /dev/md0
mdadm: stopped /dev/md1
mdadm: stopped /dev/md10
=== EnablingAutoip.sh ===
=== networking.sh ===
/etc/init.d/networking.sh : Clear /etc/dhcpc/dhcpcd-eth0.pid eth0
/etc/init.d/networking.sh : Clear /etc/dhcpc/dhcpcd-eth1.pid eth1
/etc/init.d/networking.sh : Clear /etc/dhcpc/dhcpcd-bond0.pid bond0
/etc/init.d/networking.sh : Read dhcpc file
/etc/init.d/networking.sh : configure :
create network files.. (eth0)
IP=[dhcp], netmask=[], dgw=[], dns1=[], dns2=[]
create network files.. (eth1)
IP=[dhcp], netmask=[], dgw=[]
killall: dhcpcd: no process killed
/etc/init.d/networking.sh: line 87: /etc/init.d/networking.sh : Delete /etc/dhcpc/dhcpcd-.pid: No such file or directory
Configuration network interface: lo eth0 eth1
/sbin/ifconfig eth0 mtu 1500 multicast
/sbin/ifconfig eth1 mtu 1500 multicast
requesting DHCP  tout=30[s]
networking.sh: dhcp requesting...
DontDownIface
alwaysFork
eth1: started
sendto:   count 6   sync 1
sendto:   count 5   sync 1
sendto:   count 4   sync 1
sendto:   count 3   sync 1
sendto:   count 2   sync 1
sendto:   count 1   sync 1
sendto:   count 0   sync 1
dhcpInit call AutoipBound
setAutoIP eth1 called
MAC address = 00:1d:73:df:04:d9
file name /etc/dhcpc/autoip-eth1.info
/sbin/ifconfig eth1 169.254.229.63 netmask 255.255.0.0 up
Arp result 0
/etc/init.d/rService
** eth1 : networking.sh dhcp fin.
requesting DHCP  tout=30[s]
networking.sh: dhcp requesting...
DontDownIface
alwaysFork
eth0: link down
eth0: started
eth0: link up, full duplex, speed 100 Mbps
sendto:   count 6   sync 1
sendto:   count 5   sync 0
sendto:   count 6   sync 0
dhcpcd.exe: interface eth0 has been configured with new IP=192.168.aa.bb GATEWAY=192.168.aa.cc
** eth0 : networking.sh dhcp fin.
Checking network address for each network device
configure files from Buffalo parameters.
=== syslog.sh ===
Starting system logger: load_info ItemValue = off
LoadConfFileString:key=[ad_dns] not found in /etc/melco/info.
LoadConfFileOnOff:key=[info_visible] not found in /etc/melco/info.
LoadConfFileString:key=[array2] not found in /etc/melco/diskinfo.
LoadConfFileString:key=[disk3] not found in /etc/melco/diskinfo.
LoadConfFileString:key=[disk4] not found in /etc/melco/diskinfo.

Starting kernel logger:
=== kernelmon.sh ===
Starting kernelmon:=== miconmon.sh ===
miconmon 1.05 started (Builddate Jun 22 2009 17:49:47)
=== usb.sh ===
KERNELMOn (SATA 0 unplugged)
KERNELMOn (SATA 1 unplugged)
KERNELMOn (SATA 2 unplugged)
KERNELMOn (SATA 3 unplugged)
usbcore: registered new interface driver usbfs
usbcore: registered new interface driver hub
usbcore: registered new device driver usb
ehci_marvell ehci_marvell.70059: Marvell Orion EHCI
ehci_marvell ehci_marvell.70059: new USB bus registered, assigned bus number 1
KERNELMOn (lanact 0 half eth0)
ehci_marvell ehci_marvell.70059: irq 16, io base 0xf1050100
ehci_marvell ehci_marvell.70059: USB 2.0 started, EHCI 1.00, driver 10 Dec 2004
usb usb1: configuration #1 chosen from 1 choice
hub 1-0:1.0: USB hub found
hub 1-0:1.0: 1 port detected
KERNELMOn (lanact 100 full eth0)
ehci_marvell ehci_marvell.168472: Marvell Orion EHCI
ehci_marvell ehci_marvell.168472: new USB bus registered, assigned bus number 2
ehci_marvell ehci_marvell.168472: irq 17, io base 0xf1051100
ehci_marvell ehci_marvell.168472: USB 2.0 started, EHCI 1.00, driver 10 Dec 2004
usb usb2: configuration #1 chosen from 1 choice
hub 2-0:1.0: USB hub found
hub 2-0:1.0: 1 port detected
ehci_marvell ehci_marvell.336244: Marvell Orion EHCI
ehci_marvell ehci_marvell.336244: new USB bus registered, assigned bus number 3
ehci_marvell ehci_marvell.336244: irq 18, io base 0xf1052100
```

```
ehci_marvell ehci_marvell.336244: USB 2.0 started, EHCI 1.00, driver 10 Dec 2004
usb usb3: configuration #1 chosen from 1 choice
hub 3-0:1.0: USB hub found
hub 3-0:1.0: 1 port detected
USB Universal Host Controller Interface driver v3.0
Initializing USB Mass Storage driver...
usbcore: registered new interface driver usb-storage
USB Mass Storage support registered.
usbcore: registered new interface driver usblp
drivers/usb/class/usblp.c: v0.13: USB Printer Device Class driver
=== clientUtil_servd.sh ===
Starting clientUtil_server:
  ->Starting on eth1
  ->Starting on eth0
=== daemonwatch.sh ===
Starting daemonwatch:daemonwatch Ver.1.01
watch list file : /etc/daemonwatch.list
=== bootcomplete.sh ===
No need to run drivecheck.sh
BuffaloGpio_ChangePowerStatus > Writing 0x71
/etc/init.d/bootcomplete.sh: line 52: /usr/local/bin/sendmail.sh: No such file or directory
=== micon_setup.sh ===
/usr/local/bin/change_notify.sh:LCD display message setted to [EMERGENCY MODE  NO ARRAY INFO]
=== late_inspection_phase.sh ===
starting pid 1178, tty '': '/sbin/getty'

BUFFALO INC. TeraStation series
TS-XL-EM4D8 login: admin
Password:
admin@TS-XL-EM4D8:~$
```

Last-modified: 2010-03-05 (金) 18:26:32 (3663d)