



Kontron Linux BSP for KTUS15/mITX

1. Revision history

Revision	Date	Author	Description
1.0	12.08.2010	Vitaly Bordyug	Release notes for R01.00

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3. Introduction

This document describes Linux Board Support Package (BSP) for Kontron KTUS15/mITX board. It provides:

- a summary of BSP features;
- build and installation notes;
- listing of the release package contents.

4. Supported features/drivers

- Intel® Atom™ processor support
- Intel® Graphics Media Accelerator 500 (DVI, LVDS)
- Intel® High Definition Audio
- Intel® Gigabit Ethernet
- Intel® System Controller Hub US15W
- SATA, PATA, Compact Flash, SDIO
- RAID
- PCI, PCI-Express
- USB 1.1/2.0
- Watchdog, RTC, ACPI, SMBus, SMIBIOS, TPM

5. BSP Components

File name in delivery	Description
Kontron_Linux_KTUS15_mITX_LiveCD_R01.00.iso	LiveCD image for Kontron Linux BSP
livecd-iso-to-disk	Utility to make a bootable USB flash from ISO image
qa_delivery_R01.00_120810.zip	Testcases, QA logs, and related documents
RPMS/kernel-*	Linux Kernel and headers RPMs
RPMS/tpm-tools* RPMS/trousers* RPMS/opencrytpoki*	TPM related packages
RPMS/xorg-iegd-10.3.1-0.i686.rpm	IEGD video driver
RPMS/kontron-logos-12.2-2.fc12.noarch.rpm	Logos, graphics and themes for Kontron Linux
SRPMS/kernel-2.6.27.5-117.KTUS15.fc10.src.rpm	Linux Kernel source package
SRPMS/tpm-tools-1.3.5-5.fc10.src.rpm SRPMS/trousers-0.3.5-14.fc10.src.rpm SRPMS/opencrytpoki-2.2.8-5.fc10.src.rpm	TPM related applications source packages
SRPMS/kontron-logos-12.2-2.fc10.src.rpm	Source package of logos and themes for Kontron Linux
SRPMS/xorg-iegd-10.3.1-0.src.rpm	IEGD binaries and installation scripts

6. Installation and BSP set up procedures

The Kontron Linux distribution is LiveCD image, which can be burned to CDROM and then used as a boot media. It is then possible to evaluate functionality, and install it to Hard Drive/CompactFlash/other persistent storage. There are two ways to deploy the BSP image:

- Write CDROM with appropriate OS software (Windows or Linux host OS)
- Create bootable USB stick with supplied utility (Linux only)

6.1 Writing BSP ISO image to CD

In Linux host operating system, issue «cdrecord» command to burn BSP image to CD or DVD media. Example of the execution and respective output are below.

```
# cdrecord Kontron_Linux_KTUS15_mITX_LiveCD_R01.00.iso
wodim: No write mode specified.
wodim: Assuming -tao mode.
wodim: Future versions of wodim may have different drive dependent
defaults.
Device was not specified. Trying to find an appropriate drive...
Looking for a CD-R drive to store 547.04 MiB...
Detected CD-R drive: /dev/cdrw
Using /dev/cdrom of unknown capabilities
Device type      : Removable CD-ROM
Version         : 5
Response Format  : 2
Capabilities    :
Vendor_info     : 'HL-DT-ST'
Identification : 'DVD-RAM GSA-U10N '
Revision       : '1.05'
Device seems to be: Generic mmc2 DVD-R/DVD-RW.
Using generic SCSI-3/mmc CD-R/CD-RW driver (mmc_cdr).
Driver flags    : MMC-3 SWAUDIO BURNFREE
Supported modes: TAO PACKET SAO SAO/R96P SAO/R96R RAW/R16 RAW/R96P
RAW/R96R
Speed set to 4234 KB/s
Starting to write CD/DVD at speed 24.0 in real TAO mode for
single session.
Last chance to quit, starting real write in 0 seconds.
Operation starts.
Track 01: Total bytes read/written: 573612032/573612032 (280084
sectors).
```

Then attach CDROM to KTUS15, set up BIOS to boot from CD, make sure the CDROM is IDE Master, insert prepared CD media into KTUS15 CDROM, and exit saving BIOS settings.

6.2 Writing BSP ISO image to USB flash/disk.

1. install USB disk of capacity more than 1G into KTUS15 USB slot
2. write ISO onto disk with the command:

```
# ./livecd-iso-to-disk --noverify --format --reset-mbr
Kontron_Linux_KTUS15_mITX_LiveCD_R01.00.iso /dev/[your device]
```

Output will appear, similar to the below:

```
WARNING: THIS WILL DESTROY ANY DATA ON /dev/sdb!!!
Press Enter to continue or ctrl-c to abort
Waiting for devices to settle...
mkdosfs 3.0.1 (23 Nov 2008)
```

```
Copying live image to USB stick
Updating boot config file
Installing boot loader
USB stick set up as live image!
```

To boot the Kontron Linux distribution, insert it into KTUS15 USB slot, enable booting from USB in BIOS, save settings and reset the board.

6.3 Installation of the Kontron Linux BSP to persistent storage.

It is possible to install the live image to persistent storage. The HDD or CompactFlash should have at least 2 Gb of free space for the installation to succeed. In order to install Kontron Linux, proceed with the following steps:

1. Boot the BSP image either from LiveCD or bootable USB stick
2. Authorize as "Live System User"
3. Run "Install to Hard Drive" by clicking on its icon.
4. Install BSP following on-screen instructions ¹

7. Known issues

- Live USB flash creation requires Linux OS;
- Maximum Ethernet speed 600Mbps;
- Video driver issues:
 - Suspend and hibernate don't work with IEGD Xorg driver. Workaround - use xorg-vesa;
 - Framebuffer not supported;
 - EDID does not work properly;
- Standby mode doesn't work;
- KTAPI is not included in this release;
- TPM issues:
 - tests for PKCS11 failed;
 - public TPM's Endorsement Key is limited to be used only by the owner.

¹ Make sure checkbox "Review and modify partitioning layout" is set to make control and avoid USB disk overwrite. Before re-installing BSP, remove previous installation manually.