Release notes for Kontron Linux BSP for KTGM45/mITX R01.00

1. Revision history

Revision	Date	Author	Description
1.0	20.09.2010	Vitaly Bordyug	Release notes for R01.00 Corrections and more details

2. Table of contents

3. Introduction

This document describes Linux Board Support Package (BSP) for Kontron KTGM45/mITX board. It provides:
- a summary of BSP features;
- build and installation notes;
- listing of the release package contents.

4. Supported features/drivers

- Intel® Core™2 Duo desktop processor support
- Intel® High Definition Audio
- Intel® Gigabit Ethernet
- Intel® GM45 + ICH9ME
- SATA, PATA, Compact Flash
- RAID
- PCI, PCI-Express
- USB 1.1/2.0
- Watchdog, RTC, ACPI, SMBus, SMBIOS, TPM
- Kontron KTAPI

5. BSP Components

File name in delivery	Description
Kontron_Linux_KTGM45_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 on Linux host
liveusb-creator-3.9.1-setup.exe	Utility to make a bootable USB flash from ISO image on Windows host
qa_delivery_R01.00_200910.zip	Testcases, QA logs, and related documents
RPMS/kernel-*	Linux Kernel and headers RPM
RPMS/tpm-tools* RPMS/trousers*	TPM related packages
RPMS/kontron-logos-12.2-2.fc12.noarch.rpm	Logos, graphics and themes for Kontron Linux
RPMS/ktapi-1.0-0.x86_64.rpm	KT API utility library RPM
RPMS/firstboot-1.110-1.fc12.x86_64.rpm	Contains workaround for SMBUS issue
RPMS/generic*	Repository configuration for YUM
SRPMS/kernel-2.6.32.19-163.KTGM45.fc12.src.rpm	Linux Kernel source RPM package
SRPMS/tpm-tools-1.3.5-5.fc12.src.rpm SRPMS/trousers-0.3.5-14.fc12.src.rpm	TPM related source RPM packages
SRPMS/kontron-logos-12.2-2.fc12.src.rpm	Sources of Logos and themes for Kontron Linux
SRPMS/ktapi-1.0-0.src.rpm	KT API utility library source package
SRPMS/firstboot-1.110-1.fc12.src.rpm	Sources for SMBUS issue workaround
SRPMS/generic-release-12-2.src.rpm	Repository configuration for YUM

6. Installation and BSP set up procedures

The Kontron Linux distribution is a 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 (Windows or Linux host OS)

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_KTGM45_mITX_LiveCD_R01.00.iso
wodim: No write mode specified.
wodim: Asuming -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 672.00 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 : 'DVDRAM 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 SWABAUDIO 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: 704643072/704643072 (344064
sectors).
```

Then attach CDROM to KTGM45, set up BIOS to boot from CD, make sure the CDROM is IDE Master, insert prepared CD media into KTGM45 CDROM, and exit saving BIOS settings.

6.2 Writing BSP ISO image to USB flash/disk.

6.2.1 On Linux host:

1. install USB disk of capacity more then 1G into host USB slot
2. write ISO onto disk with the command:
```
#  ./livecd-iso-to-disk --noverify --format --reset-mbr
Kontron_Linux_KTGM45_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 KTGM45 USB slot, enable booting from USB in BIOS, save settings and reset the board.

6.2.2 On Windows host:

1. install LiveUSB Creator on the host by running liveusb-creator-3.9.1-setup.exe
2. install USB disk of capacity more then 1G into host USB slot and format it in FAT32
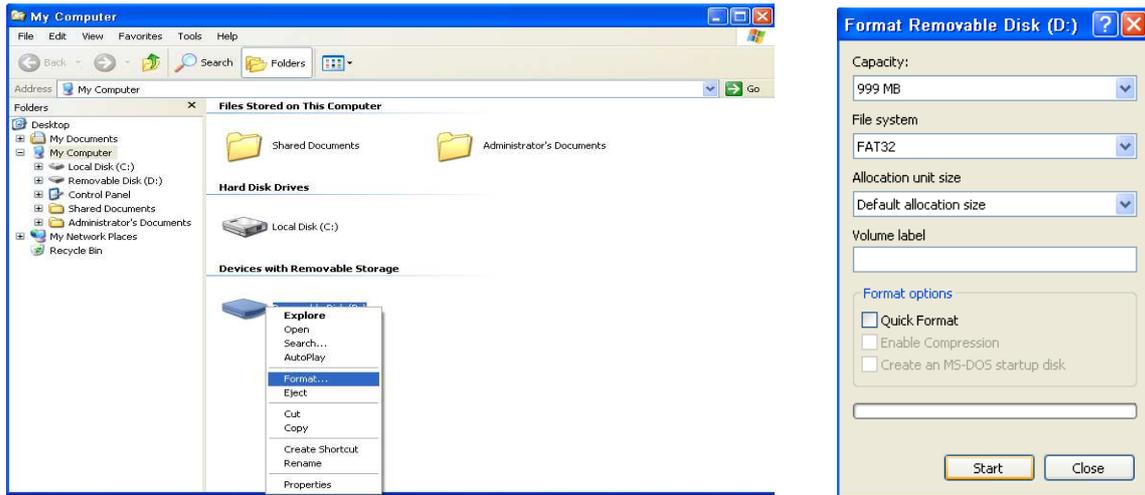
with Windows Format Utility:

3. run LiveUSB Creator: in the field "Use existing Live CD" specify
    `Kontron_Linux_KTGM45_mITX_LiveCD_R01.00.iso` ; in the field "Target Device"

specify previously formatted USB disk; click on the button "Create LiveUSB":

To boot the Kontron Linux distribution, insert it into KTGM45 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 it's icon.
4. Install BSP following on-screen instructions [1]

7. Known issues

- KTAPI beta version is used
- miniPCI-Express, 7.1 sound and FireWire were not tested because corresponding equipment is absent
- If HPET or ACPI timers are used as system timer and CPU frequency is 800 or 1600 MHz, system hangs when watchdog is triggered. Use "clocksource=tsc" kernel boot parameter to work around it.
- W83627EHF I/O resource [0xa15-0xa16] conflicts with ACPI region. Kernel boot parameter "acpi_enforce_resources=lax" is used to work around this issue.

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[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.