NAME
buildkernel-b3 − build bootable Linux kernel for the Excito B3

SYNOPSIS
buildkernel-b3 [*options*]

DESCRIPTION
buildkernel-b3 is a script that builds a Gentoo Linux kernel image suitable for booting either from the B3's internal disk (default), or from a USB key (when the **--usb** option is specified).

Any kernel so created will have the necessary code to temporarily switch off the L2 cache in early boot (per Debian workaround #658904) prepended, and the *kirkwood-b3* device tree blob appended. As such, it can be booted on a 'stock' B3 - no U-Boot flashing is necessary. (However, it is also possible to pass the **--zimage** option to create a 'raw' zImage without the cache patch or appended DTB, for use with kexec.)

You can run **buildkernel-b3** either on the B3 directly, or on a Gentoo PC (with an appropriately configured **crossdev** setup). If running on a PC, a directory *deploy_root* will be created as a result of running the script, with the necessary files for you to copy across to your B3. If running on the B3 natively, the files (kernel, modules, config DTB and System.map) will be moved to the correct positions for you (and prior copies of all but the modules backed up).

buildkernel-b3 should be run as root, in the top level kernel source directory. You will need an appropriate *.config* file in place when building the kernel (however, if running on the B3, the running kernel's config will be used as a fallback, if one is available via */proc/config.gz*, and no other *.config* is found).

OPTIONS
−c, **−−clean**
> Specifies that a **make clean** should be carried out in the kernel source directory prior to building (this will leave the *.config* file intact). Most of the time, it is fine not to **make clean**.

−d, **−−custom−dts=PATH_TO_DTS**
> Specifies that the given device tree source (DTS) file should be used by the device tree compiler, in place of the default *./arch/arm/boot/dts/kirkwood-b3.dts*. You can use this to add custom hardware functionality to your B3 (such as different boot-time LED configurations, etc.).
>
> The original file will be backed up to *./arch/arm/boot/dts/kirkwood-b3.dts.orig*, when building a kernel using this option, if no such backup file previously exists (if one does already exist, it will be left untouched, but your specified custom DTS will still be copied over *./arch/arm/boot/dts/kirkwood-b3.dts*). Accordingly, subsequent invocations (even without the **--custom-dts** option) will use your custom DTS, unless you manually revert the backup.

−h, **−−help**
> Displays a short help screen, and exits.

−m, **−−menuconfig**
> Specifies that the GUI-based kernel configuration tool (**make menuconfig**) should be invoked at the start of the build.

−n, **−−no−pump**
> Normally, when building on the B3, this script will invoke **make**(1) with the **pump**(1) prefix (to distribute compilation and pre-processing), if the **distcc-pump Portage**(5) feature is detected. Specify this option to force a local build instead.

−u, **−−usb**
> Instructs **buildkernel-b3** to create a USB-bootable FIT image (install.itb), rather than the default uImage.

−v, **−−verbose**
> Provides more verbose output from invoked tools, where possible.

−V, **−−version**
>   Displays the version number of **buildkernel-b3**, and exits.

−z, **−−zimage**
>   Creates an (unpatched) zImage, rather than a FIT or patched uImage. This type of image is appropriate for boot using kexec, via an interstitial kernel on the B3 (which must apply the cache patch, and pass the device tree blob explicitly).
>
>   This option cannot be used with **--usb**.

BUGS

- **buildkernel-b3** currently executes the kernel build process as the root user. It would be a little more hygienic to build as a non-privileged user, and then install as root. Also, this script should really be integrated into the *arch/powerpc/boot* wrapper build process, rather than be shipped standalone.

- Currently, you must override the bootloader-provided command line in your kernel *.config* (since the former will otherwise specify an incorrect root, unless you reflash the U-Boot environment... which we are trying to avoid).

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AUTHORS
>   sakaki — send bug reports or comments to <sakaki@deciban.com>

SEE ALSO
>   **make**(1), **pump**(1), **portage**(5).