info SDcard img Detalhes

Imagem padrão Linux para o kit DE10-nano da Terasic:

Arquivo	MD5 (.tar.gz)
de10-nano-insper.tar.gz	c43c2d423fde5a01e45e50e135baa84c

A iso possui as seguintes especificações:

Software

- Toolchain
  - gcc-linaro-7.2.1-2017.11-x86_64_arm-linux-gnueabihf
- Linux Kernel 4.14
  - https://github.com/altera-opensource/linux-socfpga
- FileSystem (buildroot):
- user: **root**
- password: **1234**
- Networking:
  - aftp, sshfs, dropbear
- Debuggin, profiling and benchmark:
  - dgb (server), cache-calibrator
- Graphic libraries
  - direcfb, x.org
- Crypto
  - openssl, libsha1

u-boot

- meta-de10-nano
  - VERSION-2017.03.31

Essa versão do u-boot aloca um framebuffer no endereço: `0x3F000000`

```
+ "hdmi_fdt_mod="                              \
+       "load mmc 0:1 ${fdt_addr} "              \
+           "socfpga_cyclone5_de10_nano.dtb; "       \
+       "fdt addr ${fdt_addr}; "                 \
+       "fdt resize; "                           \
+       "fdt mknode /soc framebuffer@3F000000; "         \
+       "setenv fdt_frag /soc/framebuffer@3F000000; "        \
+       "fdt set ${fdt_frag} compatible \"simple-framebuffer\"; "\
+       "fdt set ${fdt_frag} reg <0x3F000000 8294400>; "     \
+       "fdt set ${fdt_frag} format \"x8r8g8b8\"; "      \
+       "fdt set ${fdt_frag} width <${HDMI_h_active_pix}>; "     \
+       "fdt set ${fdt_frag} height <${HDMI_v_active_lin}>; "    \
+       "fdt set ${fdt_frag} stride <${HDMI_stride}>; "      \
+       "fdt set /soc stdout-path \"display0\"; "        \
+       "fdt set /aliases display0 \"/soc/framebuffer@3F000000\";"\
```

Assumi-se que o kernel possui nome `zImage` , que o baudrate do console é `115200` e que o hardware a ser carregado na FPGA é o arquivo `de10-nano.rbf` e o device tree com nome `socfpga_cyclone5_de10_nano.dtb`

```
#define CONFIG_BOOTFILE         "zImage"
#define CONFIG_BOOTARGS         "console=ttyS0,"
_stringify(CONFIG_BAUDRATE)
#define CONFIG_BOOTCOMMAND "run mmcload; run mmcboot"
```

Hardware

O Hardware contido nessa ISO é o `de10-nano-fft` fornecido no repositório do github da Intel. Com o hardware detalhado a seguir:

```
Flow Status Successful - Mon Oct  1 17:47:53 2018
Quartus Prime Version   16.1.0 Build 196 10/24/2016 SJ Standard
Edition
Revision Name   de10-nano-fft
```

```
Top-level Entity Name   top
Family  Cyclone V
Device  5CSEBA6U23I7DK
Timing Models   Final
Logic utilization (in ALMs) 20,797 / 41,910 ( 50 % )
Total registers 34901
Total pins  265 / 314 ( 84 % )
Total virtual pins  0
Total block memory bits 1,798,248 / 5,662,720 ( 32 % )
Total DSP Blocks    18 / 112 ( 16 % )
Total HSSI RX PCSs  0
Total HSSI PMA RX Deserializers 0
Total HSSI TX PCSs  0
Total HSSI PMA TX Serializers   0
Total PLLs  1 / 6 ( 17 % )
Total DLLs  1 / 4 ( 25 % )
```