

ADS GraphicsClient Plus Single Board Computer

For more details, contact Applied Data Systems or see  
<http://www.applieddata.net/products.html>

The original Linux support for this product has been provided by  
Nicolas Pitre <nico@fluxnic.net>. Continued development work by  
Woojung Huh <whuh@applieddata.net>

It's currently possible to mount a root filesystem via NFS providing a  
complete Linux environment. Otherwise a ramdisk image may be used. The  
board supports MTD/JFFS, so you could also mount something on there.

Use 'make graphicsclient\_config' before any 'make config'. This will set up  
defaults for GraphicsClient Plus support.

The kernel zImage is linked to be loaded and executed at 0xc0200000.  
Also the following registers should have the specified values upon entry:

```
r0 = 0
r1 = 29 (this is the GraphicsClient architecture number)
```

Linux can be used with the ADS BootLoader that ships with the  
newer rev boards. See their documentation on how to load Linux.  
Angel is not available for the GraphicsClient Plus AFAIK.

There is a board known as just the GraphicsClient that ADS used to  
produce but has end of life. This code will not work on the older  
board with the ADS bootloader, but should still work with Angel,  
as outlined below. In any case, if you're planning on deploying  
something en masse, you should probably get the newer board.

If using Angel on the older boards, here is a typical angel.opt option file  
if the kernel is loaded through the Angel Debug Monitor:

```
----- begin angelboot.opt -----
base 0xc0200000
entry 0xc0200000
r0 0x00000000
r1 0x0000001d
device /dev/ttyS1
options "38400 8N1"
baud 115200
#otherfile ramdisk.gz
#otherbase 0xc0800000
exec minicom
----- end angelboot.opt -----
```

Then the kernel (and ramdisk if otherfile/otherbase lines above are  
uncommented) would be loaded with:

```
angelboot -f angelboot.opt zImage
```

Here it is assumed that the board is connected to ttyS1 on your PC  
and that minicom is preconfigured with /dev/ttyS1, 38400 baud, 8N1, no flow  
control by default.

## GraphicsClient..txt

If any other bootloader is used, ensure it accomplish the same, especially for r0/r1 register values before jumping into the kernel.

Supported peripherals:

- SA1100 LCD frame buffer (8/16bpp...sort of)
- on-board SMC 92C96 ethernet NIC
- SA1100 serial port
- flash memory access (MTD/JFFS)
- pcmcia
- touchscreen(ucb1200)
- ps/2 keyboard
- console on LCD screen
- serial ports (ttyS[0-2])
  - ttyS0 is default for serial console
- Smart I/O (ADC, keypad, digital inputs, etc)  
See <http://www.applieddata.com/developers/linux> for IOCTL documentation and example user space code. ps/2 keybd is multiplexed through this driver

To do:

- UCB1200 audio with new ucb\_generic layer
- everything else! :-)

Notes:

- The flash on board is divided into 3 partitions. mtd0 is where the ADS boot ROM and zImage is stored. It's been marked as read-only to keep you from blasting over the bootloader. :) mtd1 is for the ramdisk.gz image. mtd2 is user flash space and can be utilized for either JFFS or if you're feeling crazy, running ext2 on top of it. If you're not using the ADS bootloader, you're welcome to blast over the mtd1 partition also.
- 16bpp mode requires a different cable than what ships with the board. Contact ADS or look through the manual to wire your own. Currently, if you compile with 16bit mode support and switch into a lower bpp mode, the timing is off so the image is corrupted. This will be fixed soon.

Any contribution can be sent to nico@fluxnic.net and will be greatly welcome!