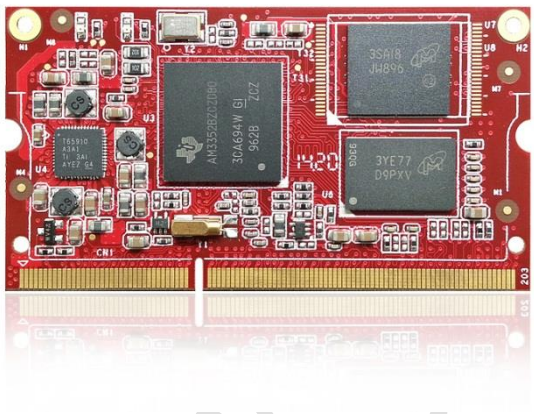
GOEMBED

Focus on Embedded Board Solutions

Linux 下内核 logo 定制教程 v1.0

基于 TI AM335x 核心平台

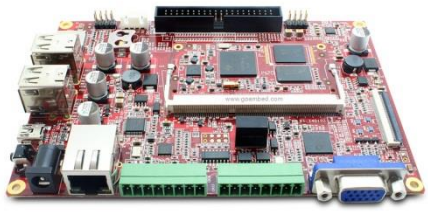
TEXAS INSTRUMENTS



免责声明

本文档是作者对 GOEMBED 产品进行实际操作和测试后，自我操作总结。由于作者水平有限，建议读者具备一定的计算机基础和基本软件操作能力，如在操作过程中，遇到疑问和错误，欢迎加 QQ 群(462424566)交流和建议，或发厂商技术支持邮箱进行咨询: support@goembed.com

操作环境配套说明：

硬件	详细介绍链接
SBC3358-B1A 单板机	
串口调试器：COM10U	

软件	详细介绍链接
Ubuntu 版本：12.04 LTS（64bit）	http://www.ubuntu.org.cn/download/desktop
Linux 版本：3.11.0-15-generic	
gcc 版本：4.6.3	

SBC3358-B1A 单板机软件特性

1、BootLoader 版本：u-boot-2013.01.01

2、内核版本：linux-3.2.0

- LCD 驱动
- LCD 背光驱动
- 电阻式触摸屏驱动
- VGA 驱动
- HSMMC/SD/MMC/SDIO 驱动
- IIC 驱动
- SPI 驱动
- 音频驱动
- DMA 驱动
- RTC 实时时钟驱动
- 电源管理
- USB HOST/DEVICE 驱动
- USB OTG 驱动
- DEBUG 驱动
- 以太网驱动
- TF 卡驱动
- CAN 驱动
- 串口驱动
- WG 驱动

3、交叉工具链：arm-linux-gnueabihf-gcc

SBC3358-B1A 单板机资源分配特性

1、emmc 空间分配

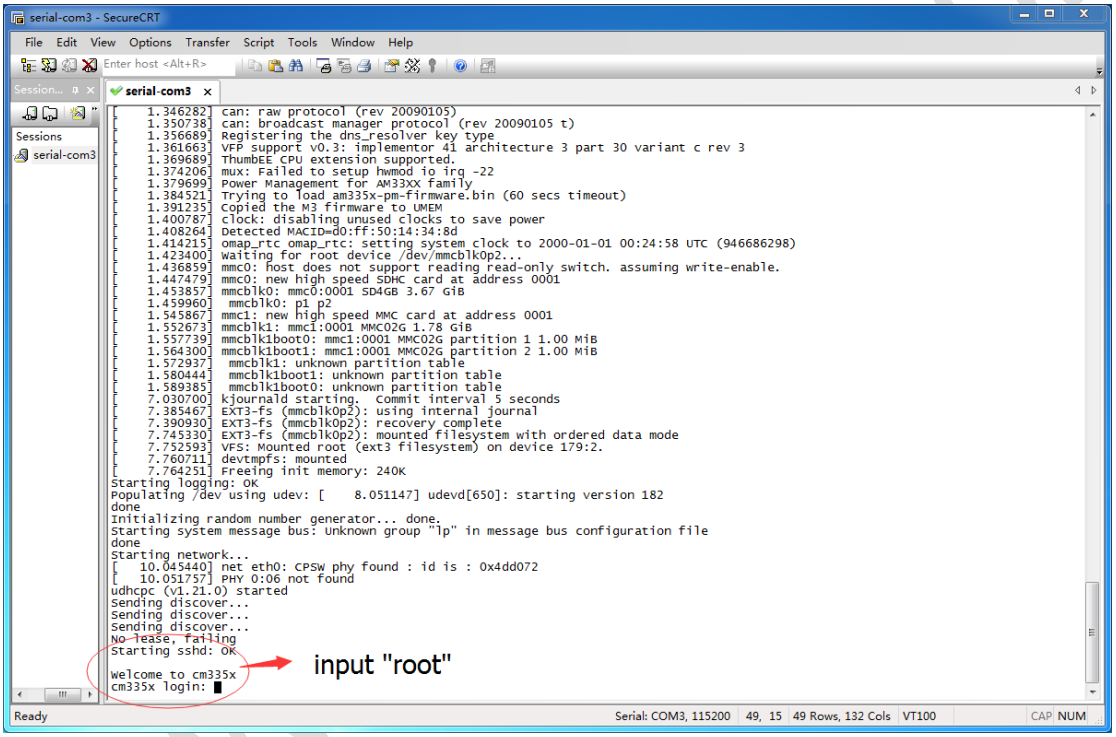
Partition	Size	Description
BootLoader	**200MB**	**FAT32 格式分区**
rootfs	**约 1500MB**	**EXT3 格式分区**

一、准备工作

1、准备好已经烧好 Linux 系统的 TF 卡，且 TF 卡 FAT 分区中必须有：MLO、u-boot.img、uEnv.txt、uImage 和 rootfs.tar.bz2 这几个文件，再把卡插到开发板中。

2、连接好 USB 转 TTL 串口模块，打开串口调试软件 SecureCRT.exe。

3、开发板接上 12V 电源适配器，开机后串口调试软件打印如下信息：



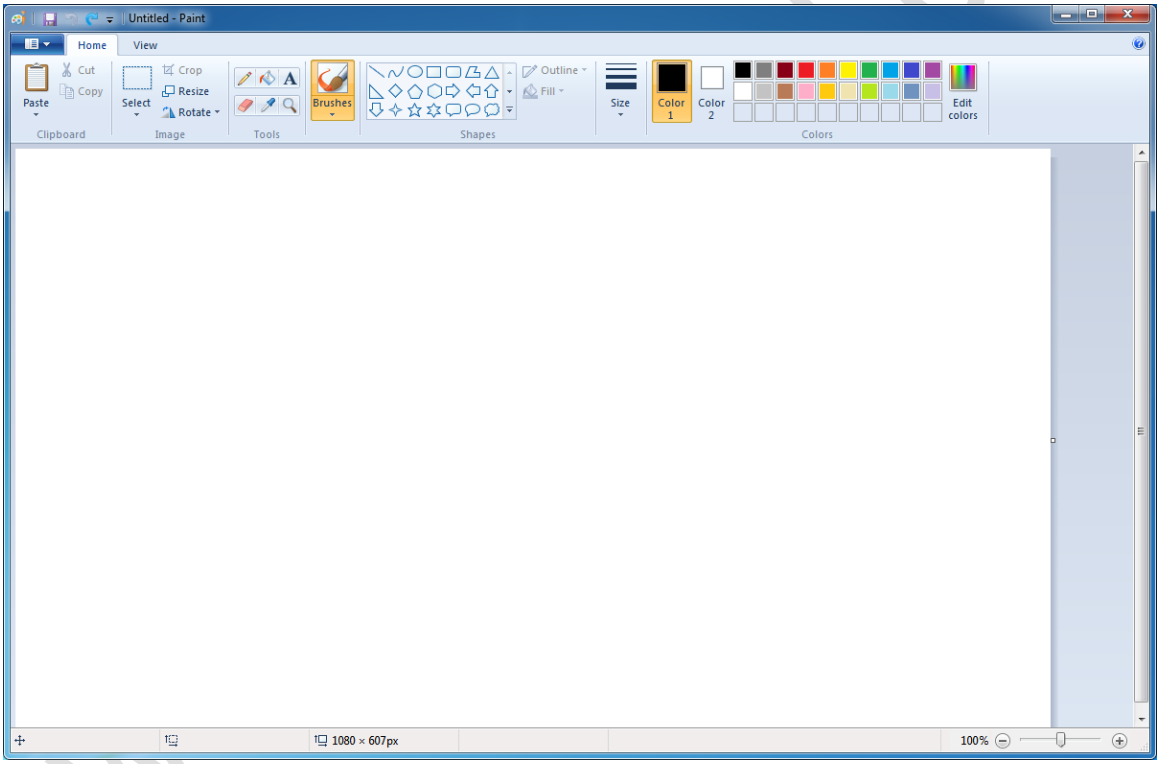
4、输入 root 登录 Linux 系统。

5、为了方便阅读和修改代码，在这里我使用的是 Source Insight(一个代码编辑工具)对代码进行修改。用户可以直接在终端使用 VI 编辑器编辑代码，结果是一样的，这里是为了阅读方便。

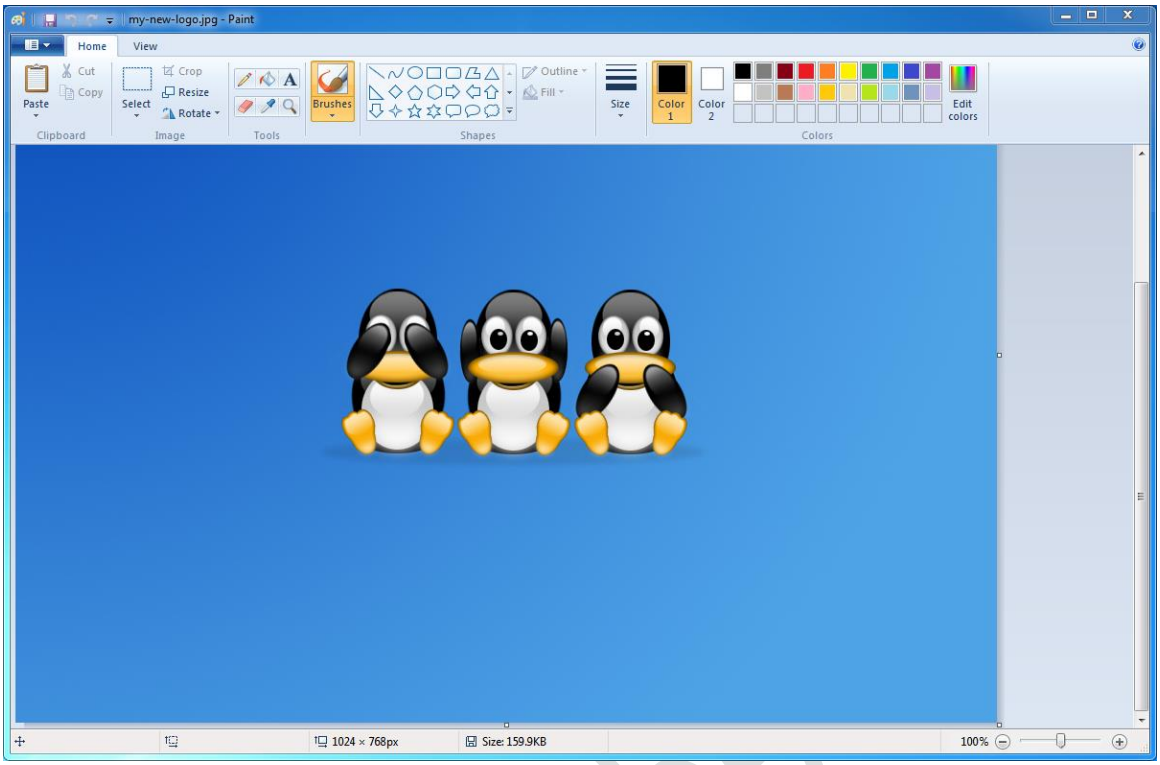
二、Windows 下 logo 图片处理

我从网上随意下载了一张图片，我的下载链接是：http://www.ivsky.com/bizhi/linux_v3181/pic_90344.html（版权原作者所有）图片大小随意只要比屏幕的尺寸大一些就行。然后我们来修改图片的分辨率以适应我们的液晶屏。在这里我用 800*272 分辨率，4.3 寸的液晶屏演示。修改图片分辨率的方法如下：

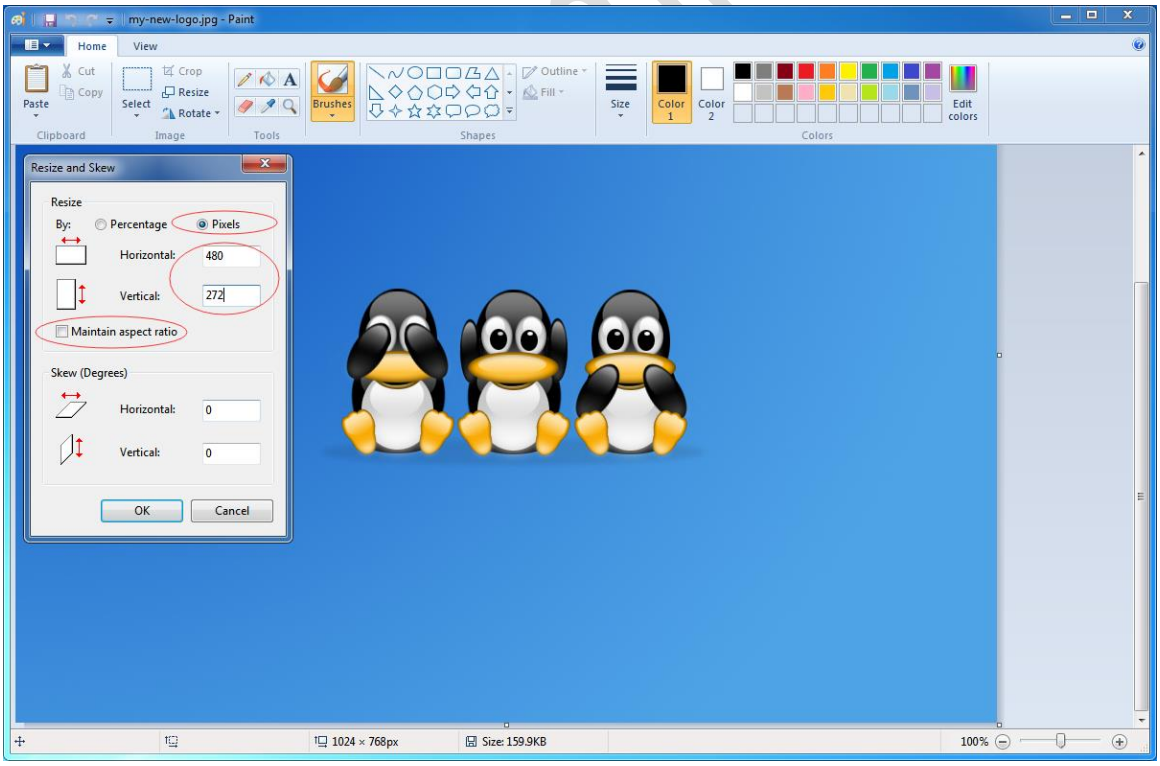
1、打开 windows 自带的“画图”软件



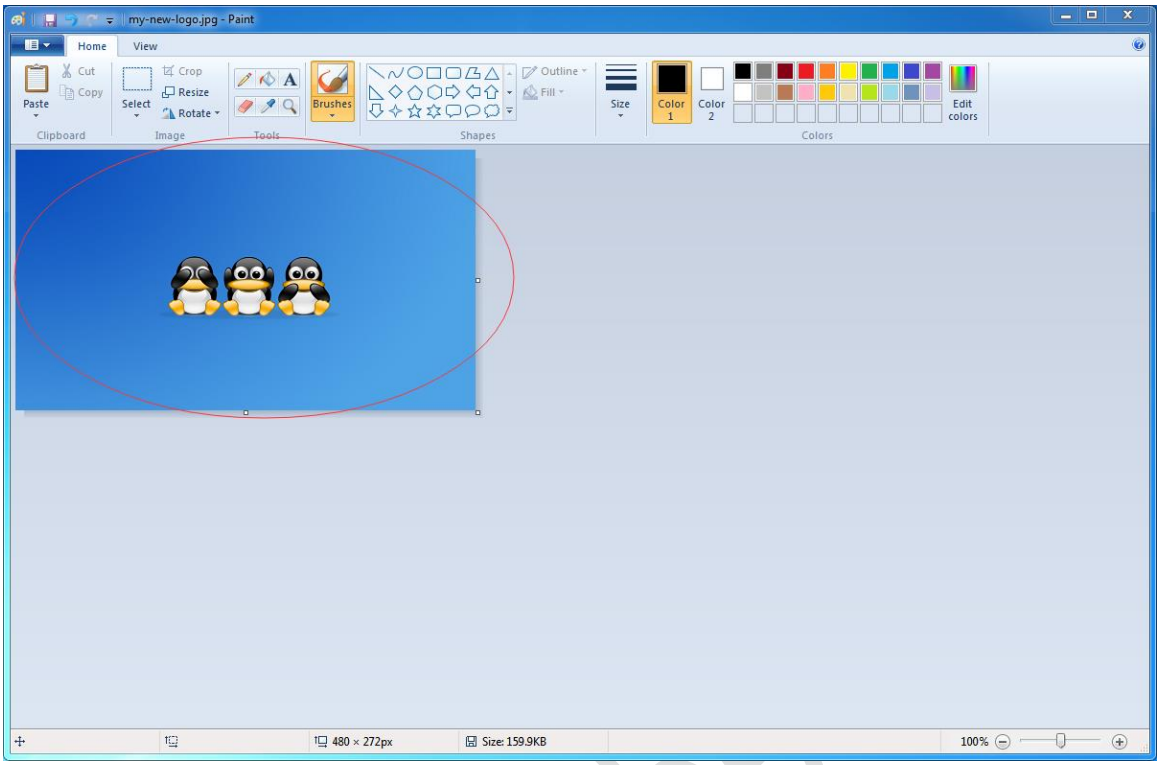
2、插入待处理图片



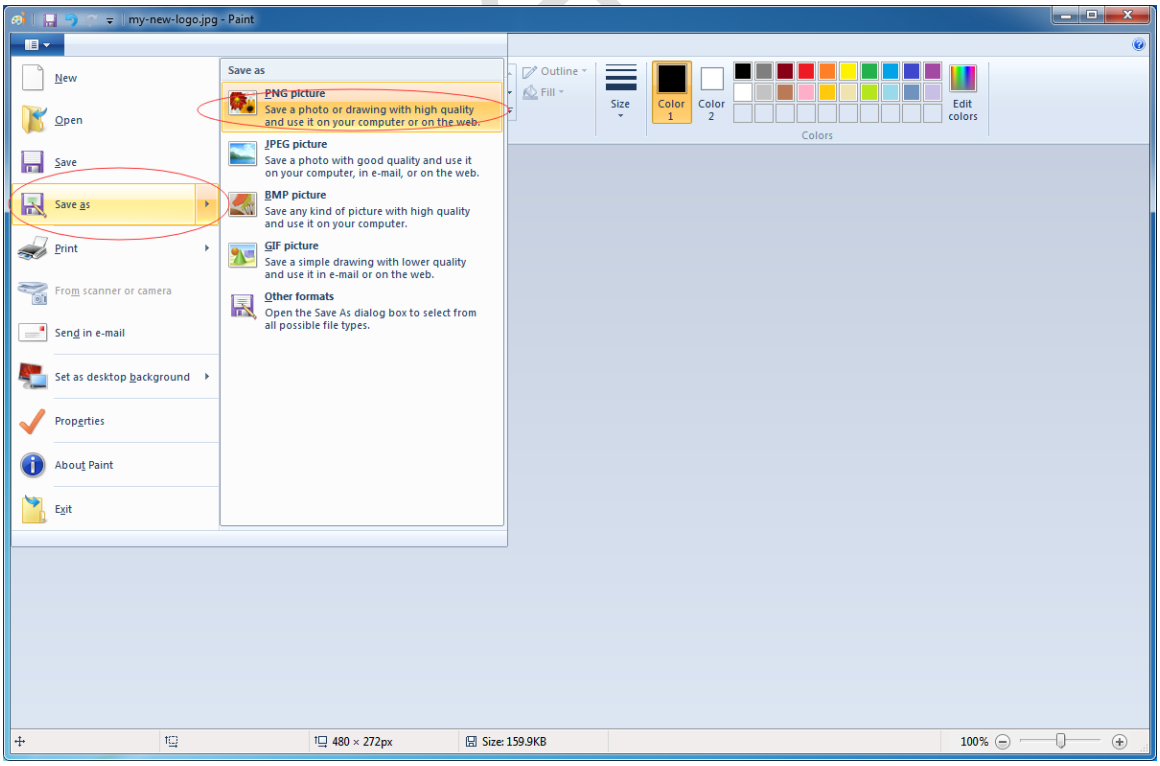
3、根据我们液晶屏参数修改图片的分辨率：



4、　点击“OK”显示如下：

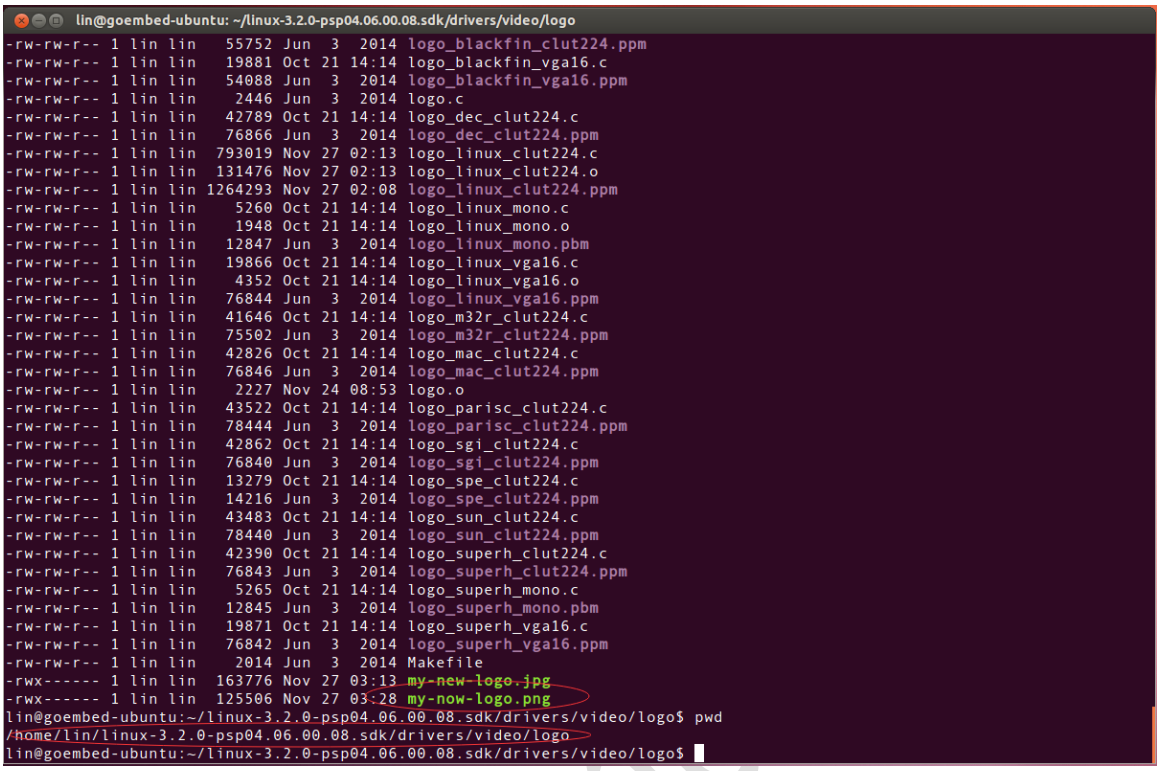


5、如下图，把新的图片另存为 png 格式的文件并命名为“my-new-logo.png”：



6、把“my-new-logo.png”放在内核源码：linux-3.2.0-psp04.06.00.08.

sdk\drivers\video\logo 路径下，并找到刚才的文件：



三、Linux 下 logo 图片处理

我们已经准备好了新的 logo 图片，但是我们还需要再进一步处理才可以拿来使用。依次输入以下命令对图片进行处理：

1、pngtopnm my-new-logo.png > my-new-logo.pnm

2、pnmquant 224 my-new-logo.pnm > my-new-logo-224.pnm

3、pnmtoplainpnm my-new-logo-224.pnm > my-new-logo-224.ppm

命令执行过程如下图所示：

```
lin@goembed-ubuntu: ~/linux-3.2.0-psp04.06.00.08.sdk/drivers/video/logo
-rw-rw-r-- 1 lin lin 1264293 Nov 27 02:08 logo_linux_clut224.ppm
-rw-rw-r-- 1 lin lin    5260 Oct 21 14:14 logo_linux_mono.c
-rw-rw-r-- 1 lin lin    1948 Oct 21 14:14 logo_linux_mono.o
-rw-rw-r-- 1 lin lin   12847 Jun  3  2014 logo_linux_mono.pbm
-rw-rw-r-- 1 lin lin   19866 Oct 21 14:14 logo_linux_vga16.c
-rw-rw-r-- 1 lin lin    4352 Oct 21 14:14 logo_linux_vga16.o
-rw-rw-r-- 1 lin lin   76844 Jun  3  2014 logo_linux_vga16.ppm
-rw-rw-r-- 1 lin lin   41646 Oct 21 14:14 logo_m32r_clut224.c
-rw-rw-r-- 1 lin lin   75502 Jun  3  2014 logo_m32r_clut224.ppm
-rw-rw-r-- 1 lin lin   42826 Oct 21 14:14 logo_mac_clut224.c
-rw-rw-r-- 1 lin lin   76846 Jun  3  2014 logo_mac_clut224.ppm
-rw-rw-r-- 1 lin lin    2227 Nov 24 08:53 logo.o
-rw-rw-r-- 1 lin lin   43522 Oct 21 14:14 logo_parisc_clut224.c
-rw-rw-r-- 1 lin lin   78444 Jun  3  2014 logo_parisc_clut224.ppm
-rw-rw-r-- 1 lin lin   42862 Oct 21 14:14 logo_sgi_clut224.c
-rw-rw-r-- 1 lin lin   76840 Jun  3  2014 logo_sgi_clut224.ppm
-rw-rw-r-- 1 lin lin   13279 Oct 21 14:14 logo_spe_clut224.c
-rw-rw-r-- 1 lin lin   14216 Jun  3  2014 logo_spe_clut224.ppm
-rw-rw-r-- 1 lin lin   43483 Oct 21 14:14 logo_sun_clut224.c
-rw-rw-r-- 1 lin lin   78440 Jun  3  2014 logo_sun_clut224.ppm
-rw-rw-r-- 1 lin lin   42390 Oct 21 14:14 logo_superh_clut224.c
-rw-rw-r-- 1 lin lin   76843 Jun  3  2014 logo_superh_clut224.ppm
-rw-rw-r-- 1 lin lin    5265 Oct 21 14:14 logo_superh_mono.c
-rw-rw-r-- 1 lin lin   12845 Jun  3  2014 logo_superh_mono.pbm
-rw-rw-r-- 1 lin lin   19871 Oct 21 14:14 logo_superh_vga16.c
-rw-rw-r-- 1 lin lin   76842 Jun  3  2014 logo_superh_vga16.ppm
-rw-rw-r-- 1 lin lin    2014 Jun  3  2014 Makefile
-rwx------ 1 lin lin  163776 Nov 27 03:13 my-new-logo.jpg
-rwx------ 1 lin lin  125506 Nov 27 03:28 my-new-logo.png
-rw-rw-r-- 1 lin lin  391695 Nov 27 03:44 my-new-logo.pnm
lin@goembed-ubuntu:~/linux-3.2.0-psp04.06.00.08.sdk/drivers/video/logo$ pngtopnm my-new-logo.png >my-new-logo.pnm
lin@goembed-ubuntu:~/linux-3.2.0-psp04.06.00.08.sdk/drivers/video/logo$ pnmquant 224 my-new-logo.pnm > my-new-logo-224.p
nm
pnmcolormap: making histogram...
pnmcolormap: 6084 colors found
pnmcolormap: choosing 224 colors...
pnmremap: 208 colors found in colormap
lin@goembed-ubuntu:~/linux-3.2.0-psp04.06.00.08.sdk/drivers/video/logo$ pnmtoplainpnm my-new-logo-224.pnm >my-new-logo-2
24.ppm
lin@goembed-ubuntu:~/linux-3.2.0-psp04.06.00.08.sdk/drivers/video/logo$
```

查看处理完成的 my-new-logo-224.ppm 文件：

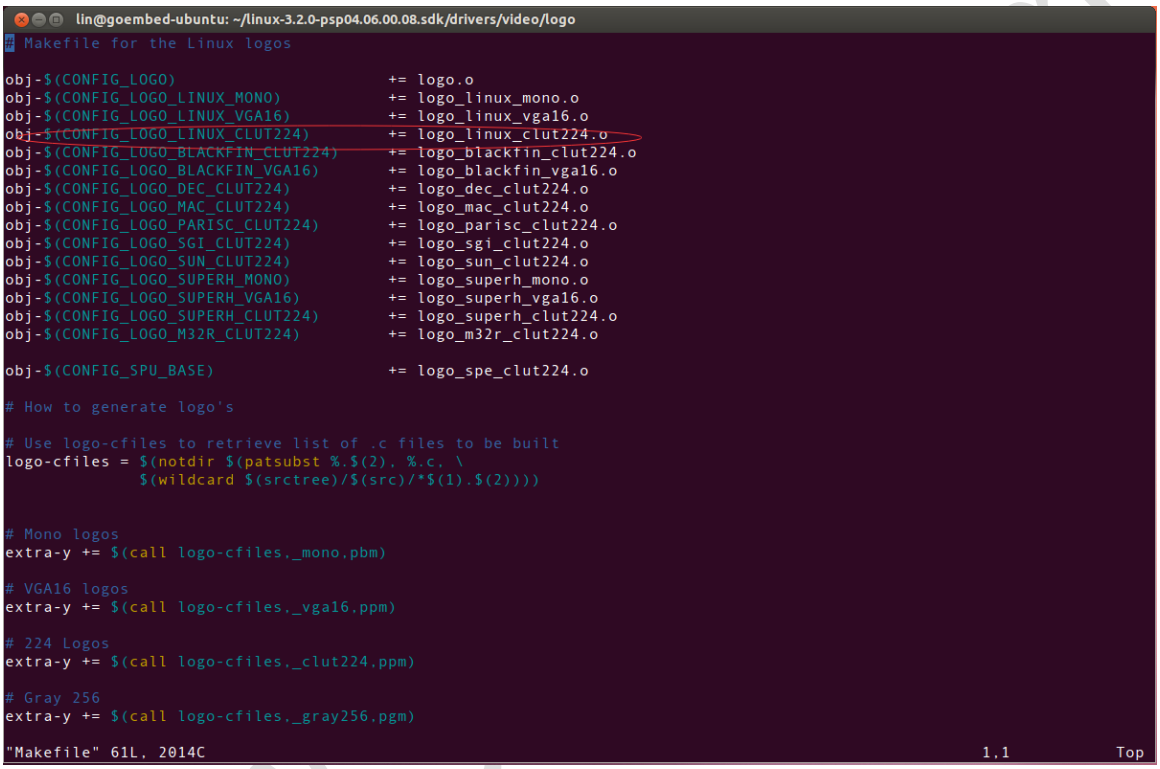
```
lin@goembed-ubuntu: ~/linux-3.2.0-psp04.06.00.08.sdk/drivers/video/logo
-rw-rw-r-- 1 lin lin   19881 Oct 21 14:14 logo_blackfin_vga16.c
-rw-rw-r-- 1 lin lin   54088 Jun  3  2014 logo_blackfin_vga16.ppm
-rw-rw-r-- 1 lin lin    2446 Jun  3  2014 logo.c
-rw-rw-r-- 1 lin lin   42789 Oct 21 14:14 logo_dec_clut224.c
-rw-rw-r-- 1 lin lin   76866 Jun  3  2014 logo_dec_clut224.ppm
-rw-rw-r-- 1 lin lin  793019 Nov 27 02:13 logo_linux_clut224.c
-rw-rw-r-- 1 lin lin  131476 Nov 27 02:13 logo_linux_clut224.o
-rw-rw-r-- 1 lin lin 1264293 Nov 27 02:08 logo_linux_clut224.ppm
-rw-rw-r-- 1 lin lin    5260 Oct 21 14:14 logo_linux_mono.c
-rw-rw-r-- 1 lin lin    1948 Oct 21 14:14 logo_linux_mono.o
-rw-rw-r-- 1 lin lin   12847 Jun  3  2014 logo_linux_mono.pbm
-rw-rw-r-- 1 lin lin   19866 Oct 21 14:14 logo_linux_vga16.c
-rw-rw-r-- 1 lin lin    4352 Oct 21 14:14 logo_linux_vga16.o
-rw-rw-r-- 1 lin lin   76844 Jun  3  2014 logo_linux_vga16.ppm
-rw-rw-r-- 1 lin lin   41646 Oct 21 14:14 logo_m32r_clut224.c
-rw-rw-r-- 1 lin lin   75502 Jun  3  2014 logo_m32r_clut224.ppm
-rw-rw-r-- 1 lin lin   42826 Oct 21 14:14 logo_mac_clut224.c
-rw-rw-r-- 1 lin lin   76846 Jun  3  2014 logo_mac_clut224.ppm
-rw-rw-r-- 1 lin lin    2227 Nov 24 08:53 logo.o
-rw-rw-r-- 1 lin lin   43522 Oct 21 14:14 logo_parisc_clut224.c
-rw-rw-r-- 1 lin lin   78444 Jun  3  2014 logo_parisc_clut224.ppm
-rw-rw-r-- 1 lin lin   42862 Oct 21 14:14 logo_sgi_clut224.c
-rw-rw-r-- 1 lin lin   76840 Jun  3  2014 logo_sgi_clut224.ppm
-rw-rw-r-- 1 lin lin   13279 Oct 21 14:14 logo_spe_clut224.c
-rw-rw-r-- 1 lin lin   14216 Jun  3  2014 logo_spe_clut224.ppm
-rw-rw-r-- 1 lin lin   43483 Oct 21 14:14 logo_sun_clut224.c
-rw-rw-r-- 1 lin lin   78440 Jun  3  2014 logo_sun_clut224.ppm
-rw-rw-r-- 1 lin lin   42390 Oct 21 14:14 logo_superh_clut224.c
-rw-rw-r-- 1 lin lin   76843 Jun  3  2014 logo_superh_clut224.ppm
-rw-rw-r-- 1 lin lin    5265 Oct 21 14:14 logo_superh_mono.c
-rw-rw-r-- 1 lin lin   12845 Jun  3  2014 logo_superh_mono.pbm
-rw-rw-r-- 1 lin lin   19871 Oct 21 14:14 logo_superh_vga16.c
-rw-rw-r-- 1 lin lin   76842 Jun  3  2014 logo_superh_vga16.ppm
-rw-rw-r-- 1 lin lin    2014 Jun  3  2014 Makefile
-rw-rw-r-- 1 lin lin  391695 Nov 27 03:45 my-new-logo-224.pnm
-rw-rw-r-- 1 lin lin 1524634 Nov 27 03:46 my-new-logo-224.ppm
-rwx------ 1 lin lin  163776 Nov 27 03:13 my-new-logo.jpg
-rwx------ 1 lin lin  125506 Nov 27 03:28 my-new-logo.png
-rw-rw-r-- 1 lin lin  391695 Nov 27 03:45 my-new-logo.pnm
lin@goembed-ubuntu:~/linux-3.2.0-psp04.06.00.08.sdk/drivers/video/logo$
```

到这里，图片处理全部完成。

四、编译新 logo 进内核

1、查看 logo 编译对应的 Makefile 文件

编译 logo 对应的 Makefile 文件（路径就也是 linux-3.2.0-psp04.06.00.08.sdk\drivers\video\logo）中，操作 logo 图片的代码是：



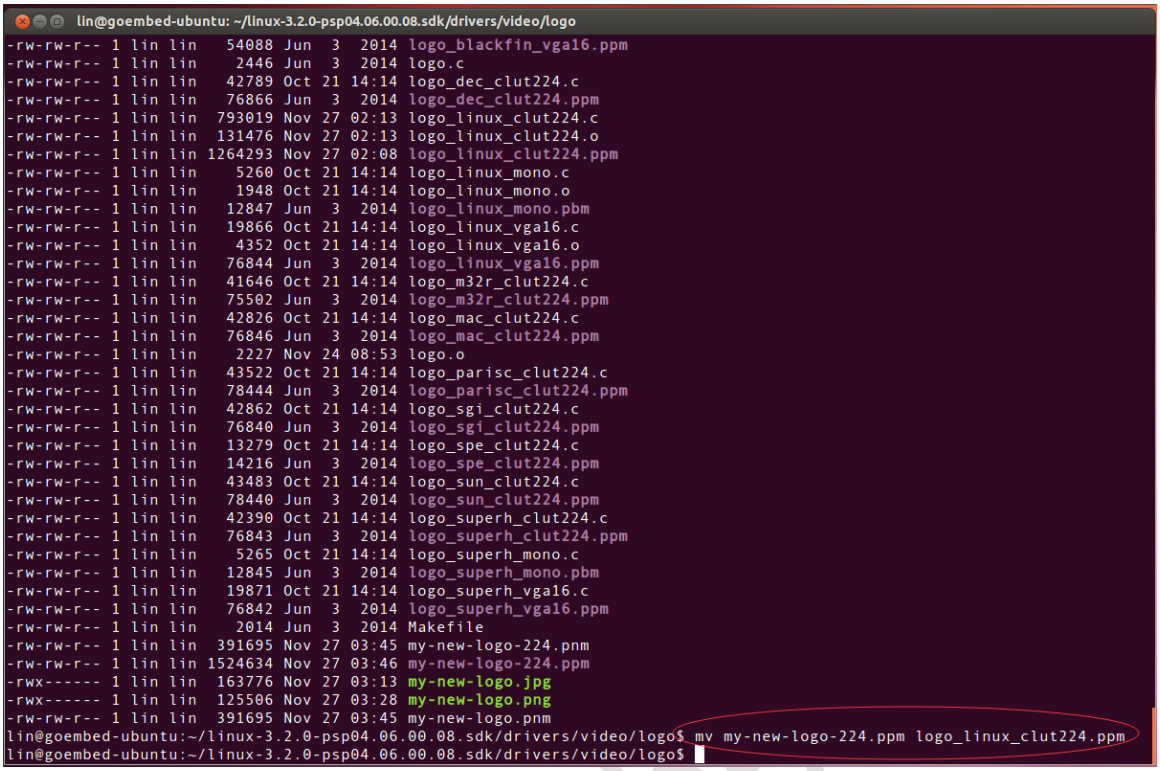
系统默认的 logo 文件名是：

```
lin@goembed-ubuntu: ~/linux-3.2.0-psp04.06.00.08.sdk/drivers/video/logo
lin@goembed-ubuntu:~/linux-3.2.0-psp04.06.00.08.sdk/drivers/video/logo$ vi Makefile
lin@goembed-ubuntu:~/linux-3.2.0-psp04.06.00.08.sdk/drivers/video/logo$ ls -l
total 6992
-rw-rw-r-- 1 lin lin  388815 Nov 27 02:07 aa_224.pnm
-rw-rw-r-- 1 lin lin  388815 Nov 27 02:07 aa.pnm
-rw-rw-r-- 1 lin lin   76845 Jul 19  2014 back.ppm
-rw-rw-r-- 1 lin lin  137456 Nov 27 02:13 built-in.o
-rw-rw-r-- 1 lin lin     417 Oct 21 14:14 clut_vga16.c
-rw-rw-r-- 1 lin lin     230 Jun  3  2014 clut_vga16.ppm
-rw-rw-r-- 1 lin lin    1594 Jun  3  2014 Kconfig
-rw-rw-r-- 1 lin lin   43481 Oct 21 14:14 logo_blackfin_clut224.c
-rw-rw-r-- 1 lin lin   55752 Jun  3  2014 logo_blackfin_clut224.ppm
-rw-rw-r-- 1 lin lin   19881 Oct 21 14:14 logo_blackfin_vga16.c
-rw-rw-r-- 1 lin lin   54088 Jun  3  2014 logo_blackfin_vga16.ppm
-rw-rw-r-- 1 lin lin    2446 Jun  3  2014 logo.c
-rw-rw-r-- 1 lin lin   42789 Oct 21 14:14 logo_dec_clut224.c
-rw-rw-r-- 1 lin lin   76866 Jun  3  2014 logo_dec_clut224.ppm
-rw-rw-r-- 1 lin lin  793019 Nov 27 02:13 logo_linux_clut224.c
-rw-rw-r-- 1 lin lin  131476 Nov 27 02:13 logo_linux_clut224.o
-rw-rw-r-- 1 lin lin 1264293 Nov 27 02:08 logo_linux_clut224.ppm
-rw-rw-r-- 1 lin lin    5260 Oct 21 14:14 logo_linux_mono.c
-rw-rw-r-- 1 lin lin    1948 Oct 21 14:14 logo_linux_mono.o
-rw-rw-r-- 1 lin lin   12847 Jun  3  2014 logo_linux_mono.pbm
-rw-rw-r-- 1 lin lin   19866 Oct 21 14:14 logo_linux_vga16.c
-rw-rw-r-- 1 lin lin    4352 Oct 21 14:14 logo_linux_vga16.o
-rw-rw-r-- 1 lin lin   76844 Jun  3  2014 logo_linux_vga16.ppm
-rw-rw-r-- 1 lin lin   41646 Oct 21 14:14 logo_m32r_clut224.c
-rw-rw-r-- 1 lin lin   75502 Jun  3  2014 logo_m32r_clut224.ppm
-rw-rw-r-- 1 lin lin   42826 Oct 21 14:14 logo_mac_clut224.c
-rw-rw-r-- 1 lin lin   76846 Jun  3  2014 logo_mac_clut224.ppm
-rw-rw-r-- 1 lin lin    2227 Nov 24 08:53 logo.o
-rw-rw-r-- 1 lin lin   43522 Oct 21 14:14 logo_parisc_clut224.c
-rw-rw-r-- 1 lin lin   78444 Jun  3  2014 logo_parisc_clut224.ppm
-rw-rw-r-- 1 lin lin   42862 Oct 21 14:14 logo_sgi_clut224.c
-rw-rw-r-- 1 lin lin   76840 Jun  3  2014 logo_sgi_clut224.ppm
-rw-rw-r-- 1 lin lin   13279 Oct 21 14:14 logo_spe_clut224.c
-rw-rw-r-- 1 lin lin   14216 Jun  3  2014 logo_spe_clut224.ppm
-rw-rw-r-- 1 lin lin   43483 Oct 21 14:14 logo_sun_clut224.c
-rw-rw-r-- 1 lin lin   78440 Jun  3  2014 logo_sun_clut224.ppm
-rw-rw-r-- 1 lin lin   42390 Oct 21 14:14 logo_superh_clut224.c
```

我们有两个方案可以替换原来的 logo 文件，一是修改 Makefile 文件，使代码对应新的 logo 文件名，二是修改 logo 文件的文件名为原来 logo 文件的文件名，这样就不用修改 Makefile 文件。在这里，我们用第二种方法演示。

2、修改新 logo 文件的文件名

命令为：mv my-new-logo-224.ppm logo_linux_clut224.ppm(会覆盖原来的同名文件，如果不想覆盖可以使用-i 参数，重名时会提示用户处理)：



3、导出交叉编译工具并编译

1、请参考《TI AM335x Linux 系统编译 v1.0》导出交叉编译工具。

2、回到内核源码第一级目录，编译新的内核：

命令如下：

make ARCH=arm CROSS_COMPILE=arm-linux-gnueabihf- uImage

```
lin@goembed-ubuntu: ~/linux-3.2.0-psp04.06.00.08.sdk
-rw-rw-r-- 1 lin lin   41646 Oct 21 14:14 logo_m32r_clut224.c
-rw-rw-r-- 1 lin lin   75502 Jun  3  2014 logo_m32r_clut224.ppm
-rw-rw-r-- 1 lin lin   42826 Oct 21 14:14 logo_mac_clut224.c
-rw-rw-r-- 1 lin lin   76846 Jun  3  2014 logo_mac_clut224.ppm
-rw-rw-r-- 1 lin lin    2227 Nov 24 08:53 logo.o
-rw-rw-r-- 1 lin lin   43522 Oct 21 14:14 logo_parisc_clut224.c
-rw-rw-r-- 1 lin lin   78444 Jun  3  2014 logo_parisc_clut224.ppm
-rw-rw-r-- 1 lin lin   42862 Oct 21 14:14 logo_sgi_clut224.c
-rw-rw-r-- 1 lin lin   76840 Jun  3  2014 logo_sgi_clut224.ppm
-rw-rw-r-- 1 lin lin   13279 Oct 21 14:14 logo_spe_clut224.c
-rw-rw-r-- 1 lin lin   14216 Jun  3  2014 logo_spe_clut224.ppm
-rw-rw-r-- 1 lin lin   43483 Oct 21 14:14 logo_sun_clut224.c
-rw-rw-r-- 1 lin lin   78440 Jun  3  2014 logo_sun_clut224.ppm
-rw-rw-r-- 1 lin lin   42390 Oct 21 14:14 logo_superh_clut224.c
-rw-rw-r-- 1 lin lin   76843 Jun  3  2014 logo_superh_clut224.ppm
-rw-rw-r-- 1 lin lin    5265 Oct 21 14:14 logo_superh_mono.c
-rw-rw-r-- 1 lin lin   12845 Jun  3  2014 logo_superh_mono.pbm
-rw-rw-r-- 1 lin lin   19871 Oct 21 14:14 logo_superh_vga16.c
-rw-rw-r-- 1 lin lin   76842 Jun  3  2014 logo_superh_vga16.ppm
-rw-rw-r-- 1 lin lin    2014 Jun  3  2014 Makefile
-rw-rw-r-- 1 lin lin  391695 Nov 27 03:45 my-new-logo-224.pnm
-rw-rw-r-- 1 lin lin 1524634 Nov 27 03:46 my-new-logo-224.ppm
-rwx------ 1 lin lin  163776 Nov 27 03:13 my-new-logo.jpg
-rwx------ 1 lin lin  125506 Nov 27 03:28 my-new-logo.png
-rw-rw-r-- 1 lin lin  391695 Nov 27 03:45 my-new-logo.pnm
lin@goembed-ubuntu:~/linux-3.2.0-psp04.06.00.08.sdk/drivers/video/logo$ mv my-new-logo-224.ppm logo_linux_clut224.ppm
lin@goembed-ubuntu:~/linux-3.2.0-psp04.06.00.08.sdk/drivers/video/logo$ cd ../../../
lin@goembed-ubuntu:~/linux-3.2.0-psp04.06.00.08.sdk$ ls
arch      crypto        fs       Kbuild   MAINTAINERS     net             scripts     tools     vmlinux.o
block     Documentation  include  Kconfig  Makefile        README          security    usr
COPYING   drivers       init     kernel   mm              REPORTING-BUGS  sound       virt
CREDITS   firmware      ipc      lib      Module.symvers  samples         System.map  vmlinux
lin@goembed-ubuntu:~/linux-3.2.0-psp04.06.00.08.sdk$ make ARCH=arm CROSS_COMPILE=arm-linux-gnueabihf- uImage
  CHK     include/linux/version.h
  CHK     include/generated/utsrelease.h
make[1]: `include/generated/mach-types.h' is up to date.
  CALL    scripts/checksyscalls.sh
  CHK     include/generated/compile.h
  CHK     kernel/config_data.h
```

提示生成新的内核：

```
lin@goembed-ubuntu: ~/linux-3.2.0-psp04.06.00.08.sdk
  CALL    scripts/checksyscalls.sh
  CHK     include/generated/compile.h
  CHK     kernel/config_data.h
  LOGO    drivers/video/logo/logo_linux_clut224.c
  CC      drivers/video/logo/logo_linux_clut224.o
  LD      drivers/video/logo/built-in.o
  LD      drivers/video/built-in.o
  LD      drivers/built-in.o
  LD      vmlinux.o
  MODPOST vmlinux.o
  GEN     .version
  CHK     include/generated/compile.h
  UPD     include/generated/compile.h
  CC      init/version.o
  LD      init/built-in.o
  LD      .tmp_vmlinux1
  KSYM    .tmp_kallsyms1.S
  AS      .tmp_kallsyms1.o
  LD      .tmp_vmlinux2
  KSYM    .tmp_kallsyms2.S
  AS      .tmp_kallsyms2.o
  LD      vmlinux
  SYSMAP  System.map
  SYSMAP  .tmp_System.map
  OBJCOPY arch/arm/boot/Image
  Kernel: arch/arm/boot/Image is ready
  GZIP    arch/arm/boot/compressed/piggy.gzip
  AS      arch/arm/boot/compressed/piggy.gzip.o
  LD      arch/arm/boot/compressed/vmlinux
  OBJCOPY arch/arm/boot/zImage
  Kernel: arch/arm/boot/zImage is ready
  UIMAGE  arch/arm/boot/uImage
Image Name:   Linux-3.2.0
Created:      Fri Nov 27 04:10:55 2015
Image Type:   ARM Linux Kernel Image (uncompressed)
Data Size:    3247216 Bytes = 3171.11 kB = 3.10 MB
Load Address: 0x80008000
Entry Point:  0x80008000
  Image arch/arm/boot/uImage is ready
lin@goembed-ubuntu:~/linux-3.2.0-psp04.06.00.08.sdk$
```

五、测试新内核

注：SBC3358-B1A 默认先从 eMMC 启动，如果 eMMC 中没有镜像，则会从 TF 卡启动，如果 TF 卡中也没有镜像，则串口终端会一直打印“CCCC”。当 eMMC 中有镜像且 TF 卡也有镜像时，如果这时想从 TF 卡启动，只要先将板子上的 CN17 引脚短接再上电即可从 TF 卡启动。

（1）、用新的 uImage 文件替换原来的 uImage 文件。

（2）、插上卡，接好串口线，打开串口调试软件。

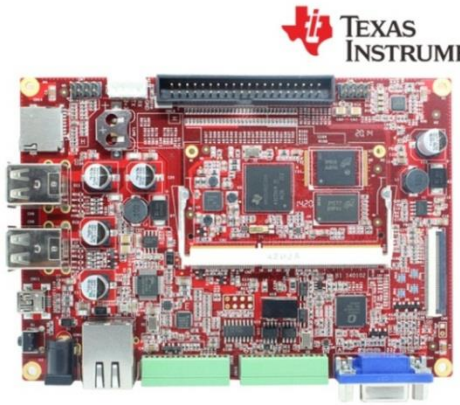
（3）、软件设置为：波特率 115200,8 bit 数据位，无校验位，1bit 停止位，无流控。

（4）、打开电源后输入“root”登录系统。

（5）、重新启动系统后可以显示新的内核 logo 图片。

到这里，Linux 下内核 logo 定制教程编写完成。

附相关 GOEMBED 产品介绍



SBC335x – B1A

SBC335x – B2A

The single board computer SBC335x-B1A/B2A which has an expansion board to carry the CM335X is one of our design of the base plate . The flexible design allows the fast and easy way of realizing and upgrading the controller's capabilities. In additional to those features offered by CM335X.

The B1A features 4 serial ports (including 2 RS232 and 2 TTL), 4 USB Host and 1 USB OTG, 1 Ethernet ports, CAN, RS485, Wiegand, VGA, LCD, Touch screen, Audio, ADC and more other peripherals.

The B2A features 4 USB Host and 1 USB OTG, 1 Ethernet ports, LCD, Touch screen,RTC, and more other peripherals.

The SBC board targets a wide range of applications, including: HMIs, Digital Signage, POS, Data Terminal, Medical Devices, Navigation, Industrial Automation, Entertainment system, Thin Clients, Robotics, Game Console and much more.

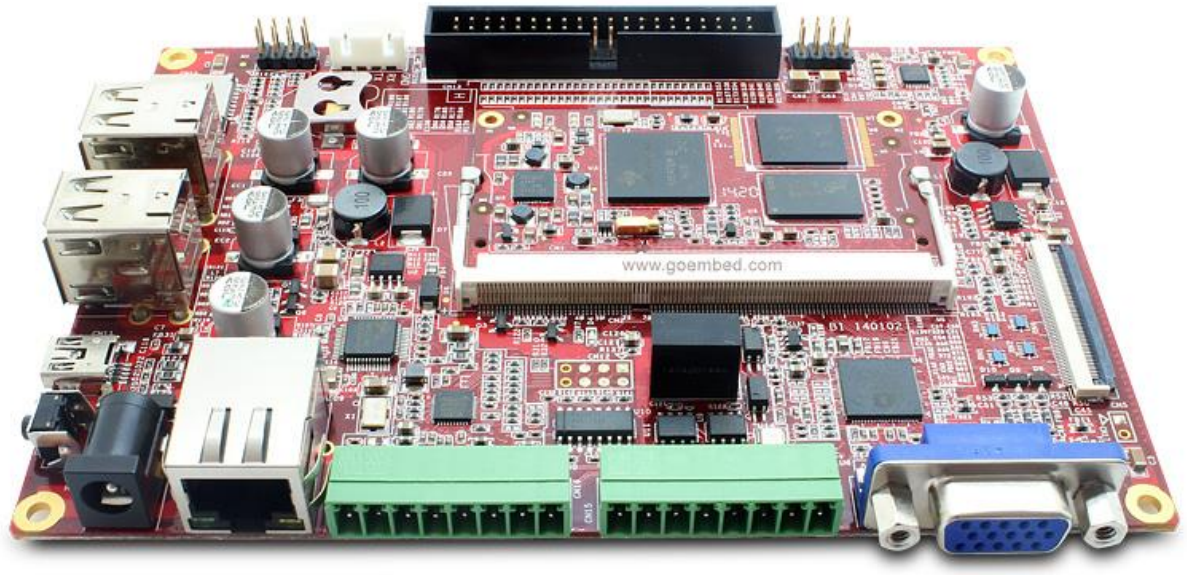
The SBC335x-B1A/B2A are ready-to-run platform to support Linux 3.x, Android 4.x and WinCE 7.0/6.0 operating systems.

If you want to support other Operating System, For more information to contact us.

Single Board Computer

SBC335x-B1A

A perfect solution for upgrading ARM9 or ARM11 devices



CM3352 ACW + B1A = SBC3352 ACW-B1A

SBC335x-B1A boards Description of part code:

Series	B1	B1	B1	B1
Part Code	SBC3352 ACW-B1A	SBC3352 BCW-B1A	SBC3358 ACW-B1A	SBC3358 BCW-B1A
Order Code	-	-	-	-
Core Module	CM3352 ACW -M51E20/08	CM3352 BCW -M51E40/08	CM3358 ACW -M51E20/10	CM3358 BCW -M51E40/10
CPU Type	ARM Cortex™-A8			
CPU Cores	1x			
CPU Clock	800MHz	800MHz	1.0GHz	1.0GHz
RAM DDR3	Micron 512MB@16bit*1			
eMMC Flash	2GB@8bit*1	4GB@8bit*1	2GB@8bit*1	4GB@8bit*1
PMU	TI TPS65910A3			
Supply Voltage	DC 9-14V			
Optimal Input	DC 12V,1.5A			
Size(L*W)	146 x 102 mm			
Temperature	0° to 70° C			
Support OS	Linux 3.x/ Android 4.x/ Ubuntu/ Angstrom/ Debian/ QT/ WinCE 6.0/7.0			
Inventory status	In Stock	Out of Stock Contact us	In Stock	Out of Stock Contact us
Minimum Availability	2022			

SBC335x-B1A Block Diagram

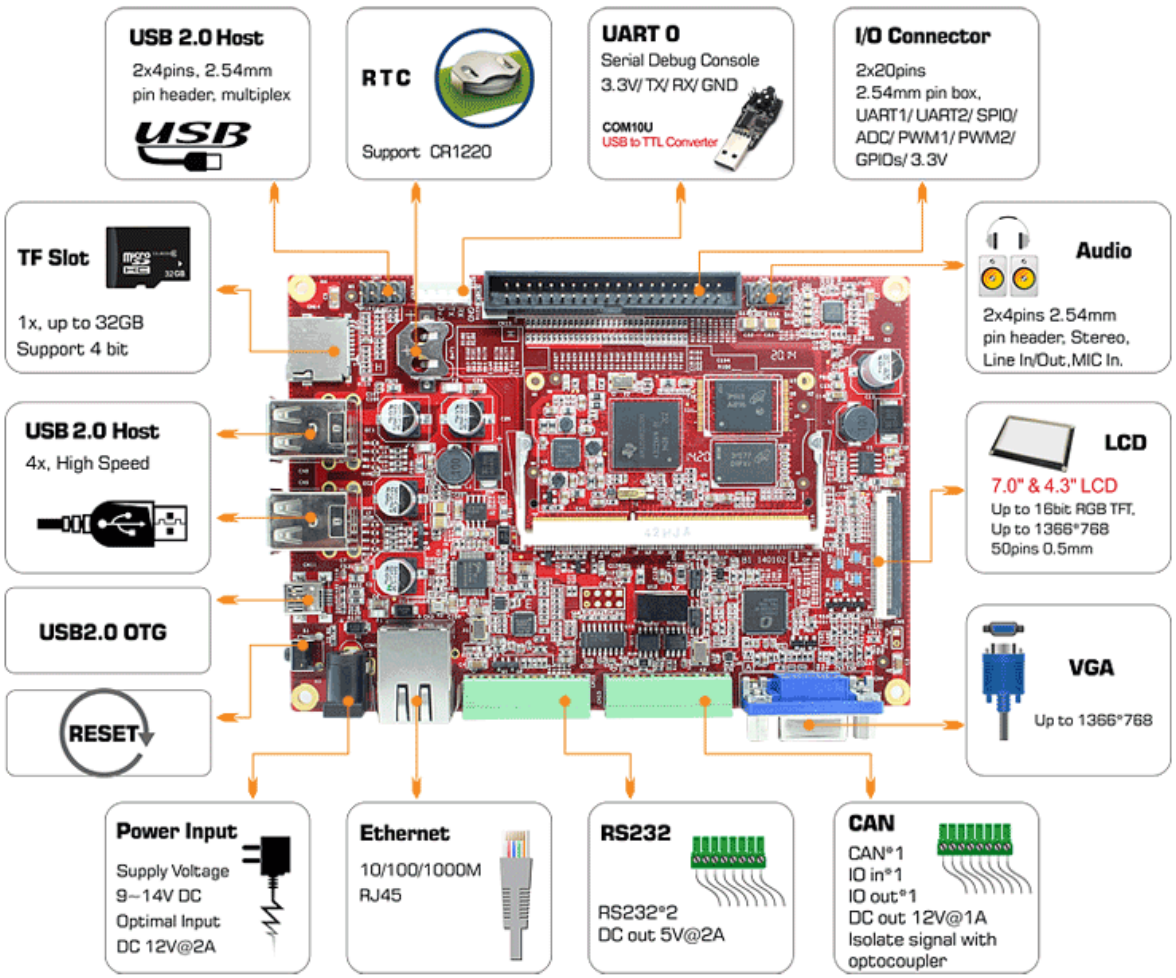


Figure 1 B1 Block Diagram

SBC335x-B2A

Single Board Computer

CM3358 ACW + B2A = SBC3358 ACW-B2A

SBC335x-B2A boards Description of part code:

Series	B2A	B2A	B2A	B2A
Part Code	SBC3352 ACW-B2A	SBC3352 BCW-B2A	SBC3358 ACW-B2A	SBC3358 BCW-B2A
Order Code	-	-	-	-
Core Module	CM3352 ACW -M51E20/08	CM3352 BCW -M51E40/08	CM3358 ACW -M51E20/10	CM3358 BCW -M51E40/10
CPU Type	ARM Cortex™-A8			
CPU Cores	1x			
CPU Clock	800MHz	800MHz	1.0GHz	1.0GHz
RAM DDR3	Micron 512MB@16bit*1			
eMMC Flash	2GB@8bit*1	4GB@8bit*1	2GB@8bit*1	4GB@8bit*1
PMU	TI TPS65910A3			
Supply Voltage	DC 9-14V			
Optimal Input	DC 12V,1.5A			
Size(L*W)	130 x 103.5 mm			
Temperature	0° to 70° C			
Support OS	Linux 3.x/ Android 4.x/ Ubuntu/ Angstrom/ Debian/ QT/ WinCE 6.0/7.0			
Inventory status	In Stock	Out of Stock Contact us	In Stock	Out of Stock Contact us
Minimum Availability	2022			

SBC335x-B2A Block Diagram

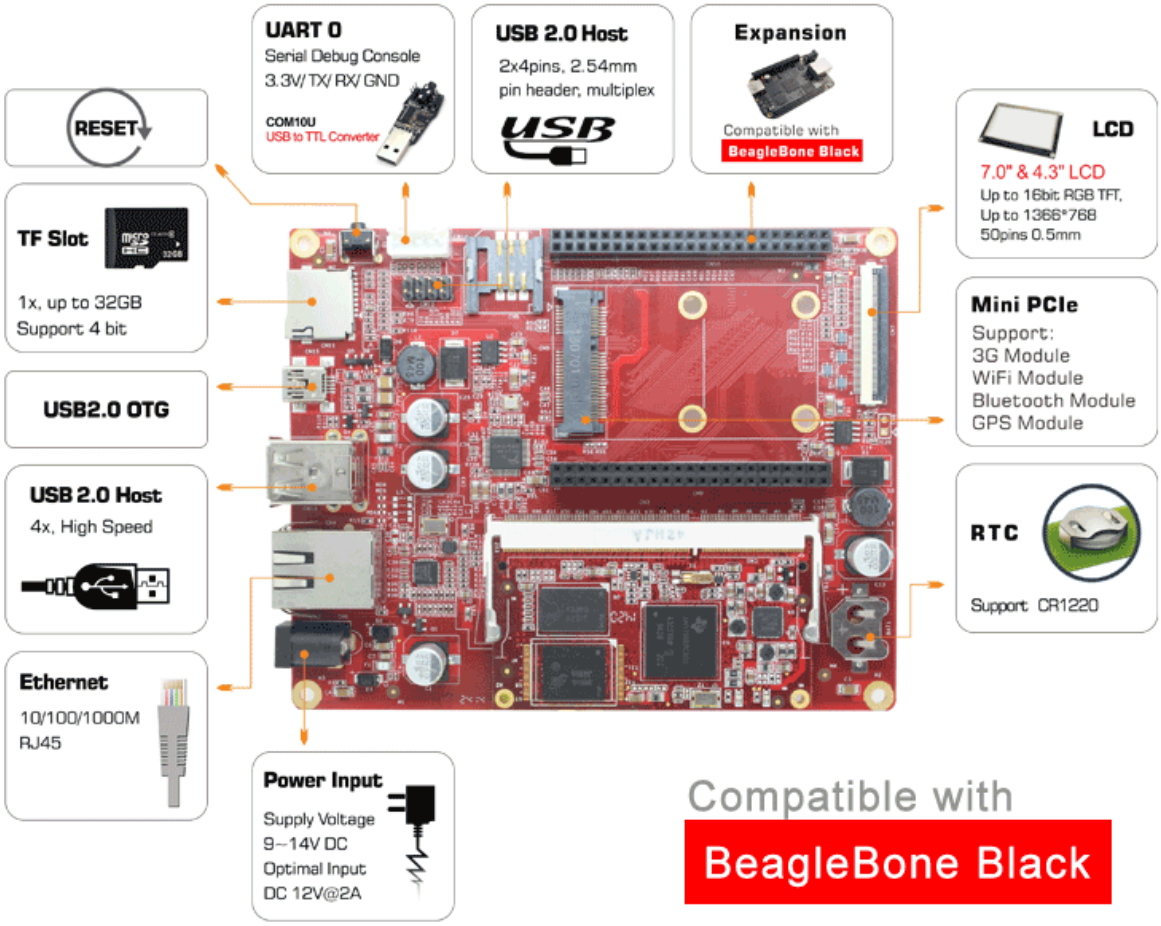


Figure 1 B2A Block Diagram

ABOUT GOEMBED

GOEMBED team with experienced embedded engineers who have been engaged in ARM hardware and software design for 10+ years.

Our products include single board computers and CPU core modules based on TI ® Sitara and Freescale ® i.MX Applications Processors based on ARM® Cores. Supported by Linux / Android / Debian / Ubuntu / QT / Angstrom / WinCE 7.0 & 6.0 / uCOS. We can redesign carrier boards and SBC as your idea quickly.

GOEMBED focus on Embedded Board Solutions, provide a complete new board for your specified requirement or even a turnkey solution to accelerate your new products to market.

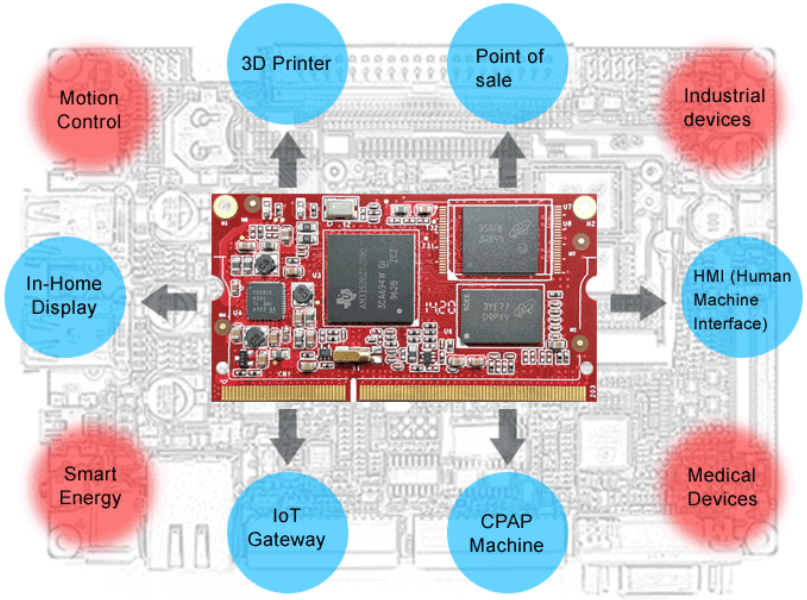
We are your trust worthy partner on ARM embedded design services and solutions.

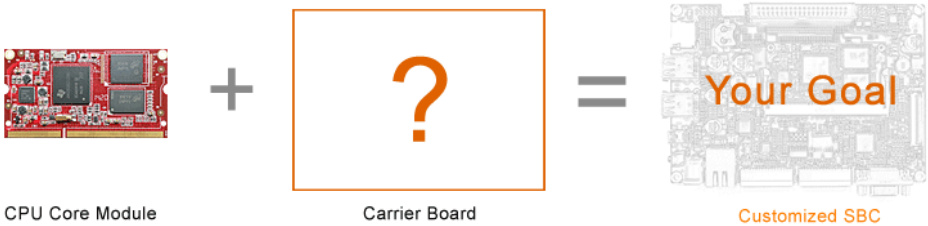
More Carrier Boards

Customized based on your needs!

ODM / OEM Services

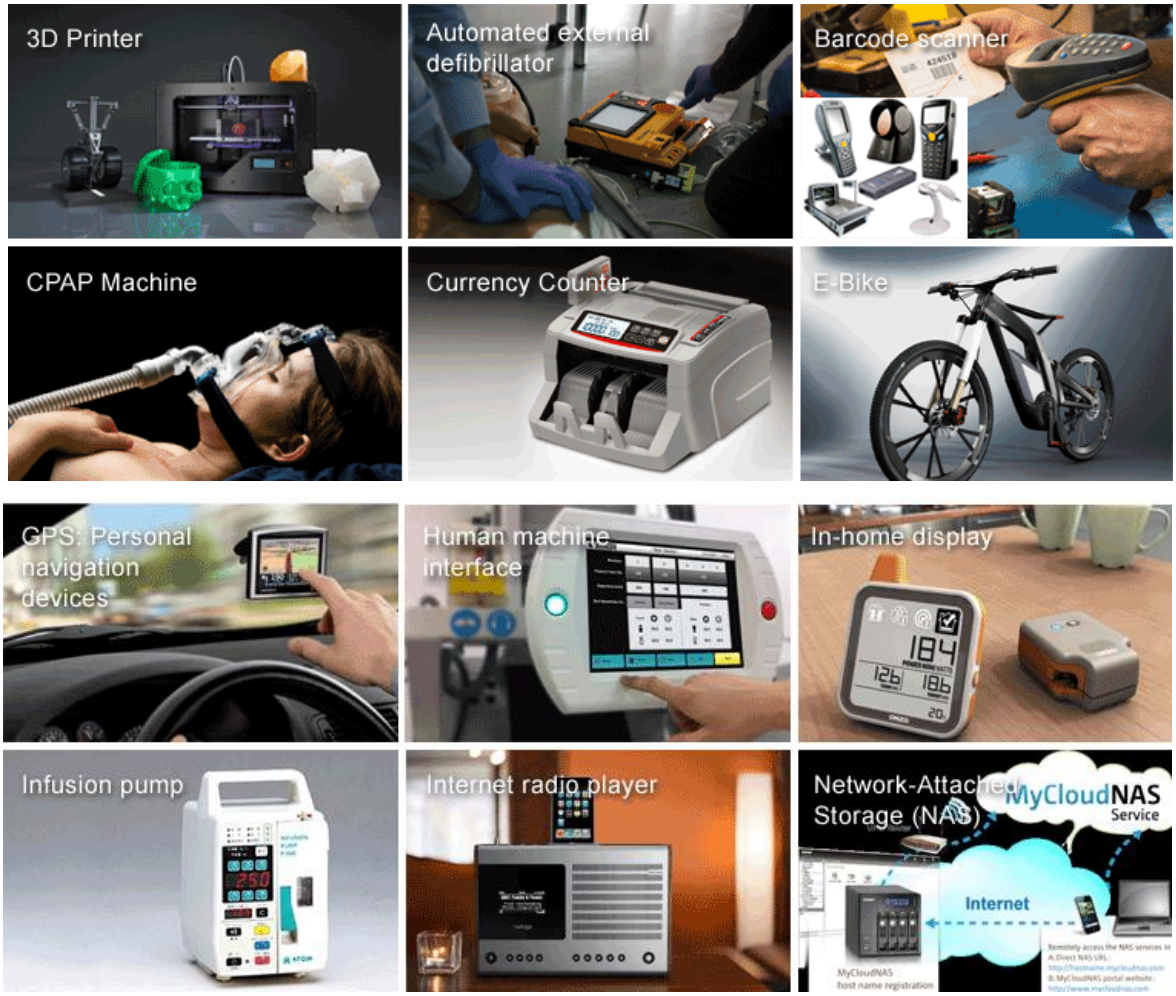
Bring your new products to market quickly





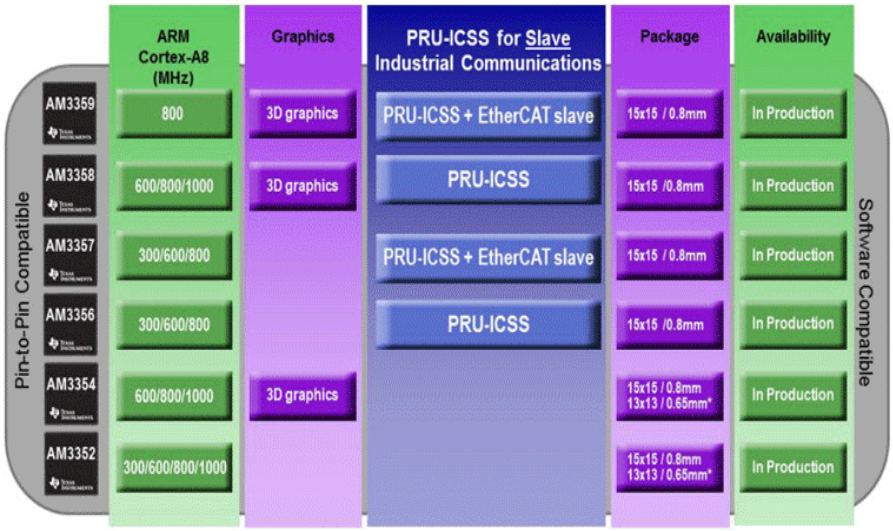
CPU Core Module | Carrier Board | Customized SBC

Related end equipment



Learn more applications please click http://www.ti.com/lsds/ti/apps/appshomepage.page

AM335x - A scalable platform with 6 pin-to-pin compatible devices



✓PRU-ICSS is used for slave industrial communication protocols such as Profibus, Profinet, Powerlink & Ethernet/IP

Package	15x15mm (ZCZ)	13x13mm (ZCE)
ARM speed	Up to 1000 MHz	Up to 600 MHz
USB 2.0 OTG + PHY	x2	x1
EMAC	2-port switch	Single port

TI Sitara ARM Cortex-A8 AM335x processors information (Content from TI):

AM335x Cortex™-A8 based processors

Benefits
- High performance Cortex-A8 at ARM9/11 prices
- Rich peripheral integration reduces system complexity and cost

Sample Applications
- Industrial / Home Automation
- Portable Navigation Devices
- Robotics
- Consumer electronics
- Smart Appliances
- Low power instrumentation
- Wireless Accessories
- Networking

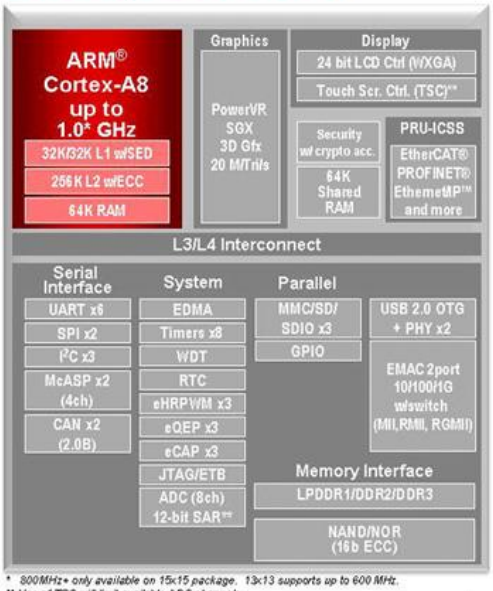
Software and development tools
- Free Linux and Android support packages direct from TI
- StarterWare enables quick and simple programming and migration among TI embedded processors
- WinCE and RTOS (QNX, Wind River, Mentor, etc.) from partners
- Full featured and low cost development board options

Power Estimates
- Total Power: 600mW-1000mW
- Standby Power: ~25mW
- Deep Sleep Power: ~5-7mW

Schedule and packaging
- Status: In production
- Dev. Tools: Available today
- Docs: Available today
- Packaging: 13x13, 0.65mm via channel array; 15x15, 0.8mm

More Information
- www.ti.com/am335x

Availability of some features, derivatives, or packages may be delayed from initial silicon availability
Peripheral limitations may apply among different packages
Some features may require third party support
All speeds shown are for commercial temperature range only



** 800MHz+ only available on 15x15 package. 13x13 supports up to 600 MHz.*
*** Use of TSC will limit available ADC channels.*
SED: single error detection/parity

1

Texas Instruments