



FAQ / Application Note

Subject :Enable Dual Display (CRT+LCD) on PPC- 22W01

FAQ Document No: S09016

Date: 2009/08/31

Model Name. PPC-22W01, EBM-945GSE

Rev .A1

Category: General H/W S/W Others, Linux

Purpose :

Enable VGA and LVDS dual output on EBM-945GSE with Ubuntu 8.10 (Kernel version: 2.6.27)

It supports both clone and extend mode.

✓ Create xorg.conf to meet user's environment

- 1.1 After Intrepid installed in text mode by default, reboot and hit <ESC> right before OS boots. This brings up the Grub Menu for boot option.
- 1.2 From the available modes, select the one ended with "(recovery mode)" then enter to boot.
- 1.3 Login as root to use command prompt in text mode.
- 1.4 Produce the X configuration file according to your own system


```
# X -configure
```

 This generates a file named xorg.conf.new under \$HOME folder of the user.
- 1.5 Copy the new xorg.conf to folder "/etc/X11" and backup the original one


```
# cp /etc/X11/xorg.conf /etc/X11/xorg.conf.intelbak
      # cp $HOME/xorg.conf.new /etc/X11/xorg.conf
```

✓ Compile new Intel Graphic Driver (2.7.0)

1.1 Download Compile Tool

```
# apt-get install kernel-package
# apt-get install libncurses5-dev
# apt-get install autoconf
# apt-get install xutils-dev
# apt-get install libtool
# apt-get install libghc6-opengl-dev
# apt-get install xorg-dev
```

1.2 Compile libdrm for Driver

```
# tar jxf libdrm-2.4.9.tar.bz2 -C /tmp
# cd /tmp/libdrm-2.4.9
# ./configure --prefix=/usr/
# make
```

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```
# make install
```

1.3 Backup Old Driver

```
# cd /usr/lib/xorg/modules/drivers/
# mv ch7017.so ch7017.so.bak
# mv ch7xxx.so ch7xxx.so.bak
# mv intel_drv.so intel_drv.so.bak
# mv ivch.so ivch.so.bak
# mv sil164.so sil164.so.bak
# mv tfp410.so tfp410.so.bak
```

1.4 Compile Intel Driver

```
# tar jxf xf86-video-intel-2.7.0.tar.bz2 -C /tmp
# cd /tmp/xf86-video-intel-2.7.0
# ./configure --prefix=/usr/
# make
# make install
```

✓ Modify xorg.conf for extended desktop mode

```
# vi /etc/X11/xorg.conf
Section "Device"
...
...
Driver "intel"
Option "monitor-VGA" "Monitor0"
Option "monitor-LVDS" "Monitor LVDS"
Option "monitor-LVDS-2" "Monitor LVDS-2"
Option "monitor-TV" "Monitor TV"
...
EndSection

Section "Monitor"
Identifier "Monitor0"
VendorName "Monitor Vendor"
ModelName "Monitor Model"
```

Modify and add configurations in blue



Modeline“1680x1050_60.00” 147.14 1680 1784 1968 2256 1050 1051 1054
1087 –HSync +Vsync
Option “Position” “0 0”
Option “PreferredMode” “1680x1050_60.00”
EndSection

Section “Monitor”
Identifier“Monitor LVDS”
VenderName “Monitor Vendor”
ModelName “Monitor Model”
Option “Ignore” “true”
EndSection

Section “Monitor”
Identifier“Monitor LVDS-2”
VenderName “Monitor Vendor”
ModelName “Monitor Model”
Option “Position” “1680 0”
Modeline“1680x1050_60.00” 147.14 1680 1784 1968 2256 1050 1051 1054
1087 –HSync +Vsync
EndSection

Section “Monitor”
Identifier“Monitor TV”
VenderName “Monitor Vendor”
ModelName “Monitor Model”
Option “Ignore” “true”
EndSection

Section “Screen”
 ...
 ...
SubSection “Display”
Viewport 0 0
Depth 16

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Virtual 4096 4096

EndSubSection

SubSection "Display"

ViewPort 0 0

Depth 24

Virtual 4096 4096

EndSubSection

...

EndSection

!Dual Monitor Success

new driver put in /usr/lib/xorg/modules/drivers/.

reboot



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✓ **Modify xorg.conf for dual display clone mode**

```
# vi /etc/X11/xorg.conf
```

```
Section "Device"
```

```
...
```

```
...
```

```
Driver "intel"
```

```
Option "monitor-VGA" "Monitor0"
```

```
Option "monitor-LVDS" "Monitor LVDS"
```

```
Option "monitor-LVDS-2" "Monitor LVDS-2"
```

```
Option "monitor-TV" "Monitor TV"
```

```
...
```

```
EndSection
```

```
Section "Monitor"
```

```
Identifier "Monitor0"
```

```
VenderName "Monitor Vendor"
```

```
ModelName "Monitor Model"
```

```
Modeline "1680x1050_60.00" 147.14 1680 1784 1968 2256 1050 1051 1054  
1087 -HSync +Vsync
```

```
Option "PreferredMode" "1680x1050_60.00"
```

```
EndSection
```

```
Section "Monitor"
```

```
Identifier "Monitor LVDS"
```

```
VenderName "Monitor Vendor"
```

```
ModelName "Monitor Model"
```

```
Option "Ignore" "true"
```

```
EndSection
```

```
Section "Monitor"
```

```
Identifier "Monitor LVDS-2"
```

```
VenderName "Monitor Vendor"
```

```
ModelName "Monitor Model"
```

```
Modeline "1680x1050_60.00" 147.14 1680 1784 1968 2256 1050 1051 1054
```

**Modify and add
configurations in green**



1087 –HSync +Vsync

EndSection

Section "Monitor"

Identifier "Monitor TV"

VenderName "Monitor Vendor"

ModelName "Monitor Model"

Option "Ignore" "true"

EndSection

Section "Screen"

...

...

SubSection "Display"

Viewport 0 0

Depth 16

EndSubSection

SubSection "Display"

ViewPort 0 0

Depth 24

EndSubSection

...

EndSection

!Dual Monitor Success

reboot



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