

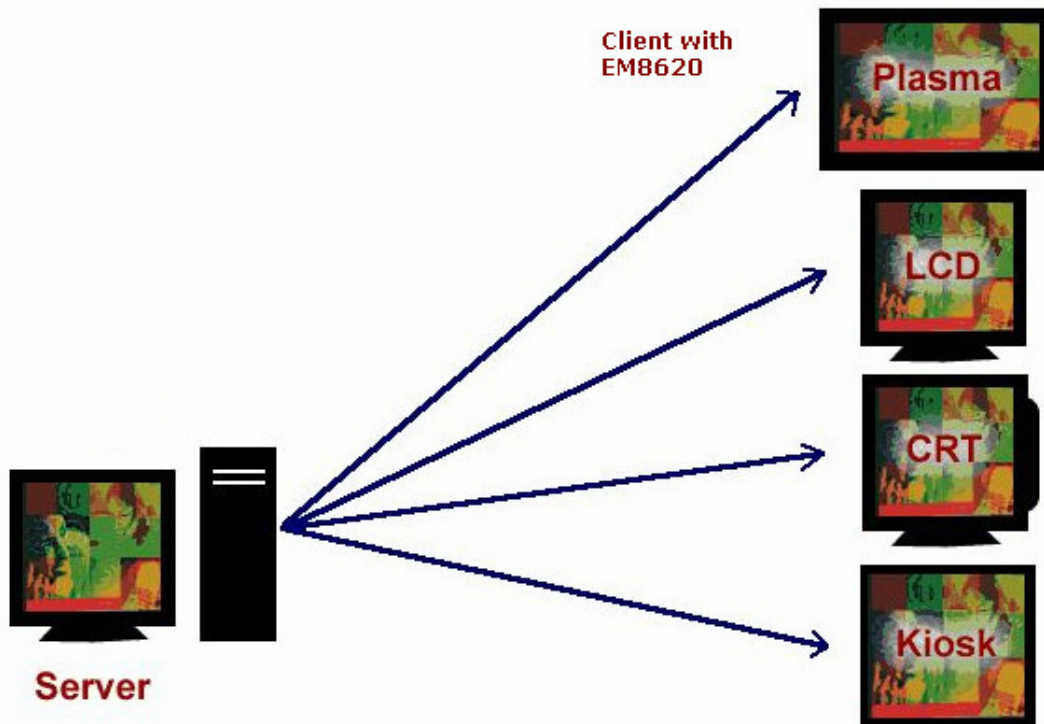


## Digital Signage Solution on EM8620

### Introduction

A DIGITAL SIGN is a display device which is used as an in-store sign to present constantly changing, computer generated, full motion video, photo-realistic graphics, text, and animation. It is a dynamic venue as opposed to static billboards and posters.

The Picture below shows different ways of connecting the digital signage devices



Media content is uploaded to the SERVER via the user-friendly central administration software. The server pushes content out to the various Digital Signage Systems within your network. These displays can be located anywhere worldwide and consist of PLASMA displays, LCD Monitors, CRT Monitors, or KIOSK stations.

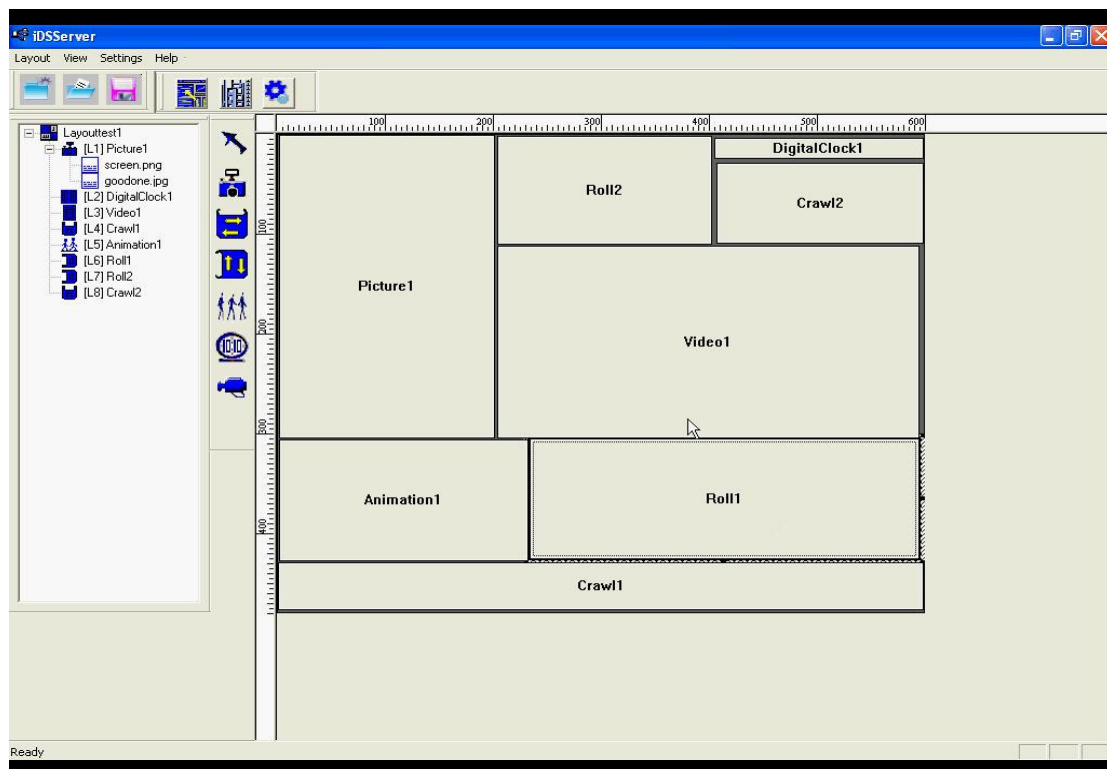


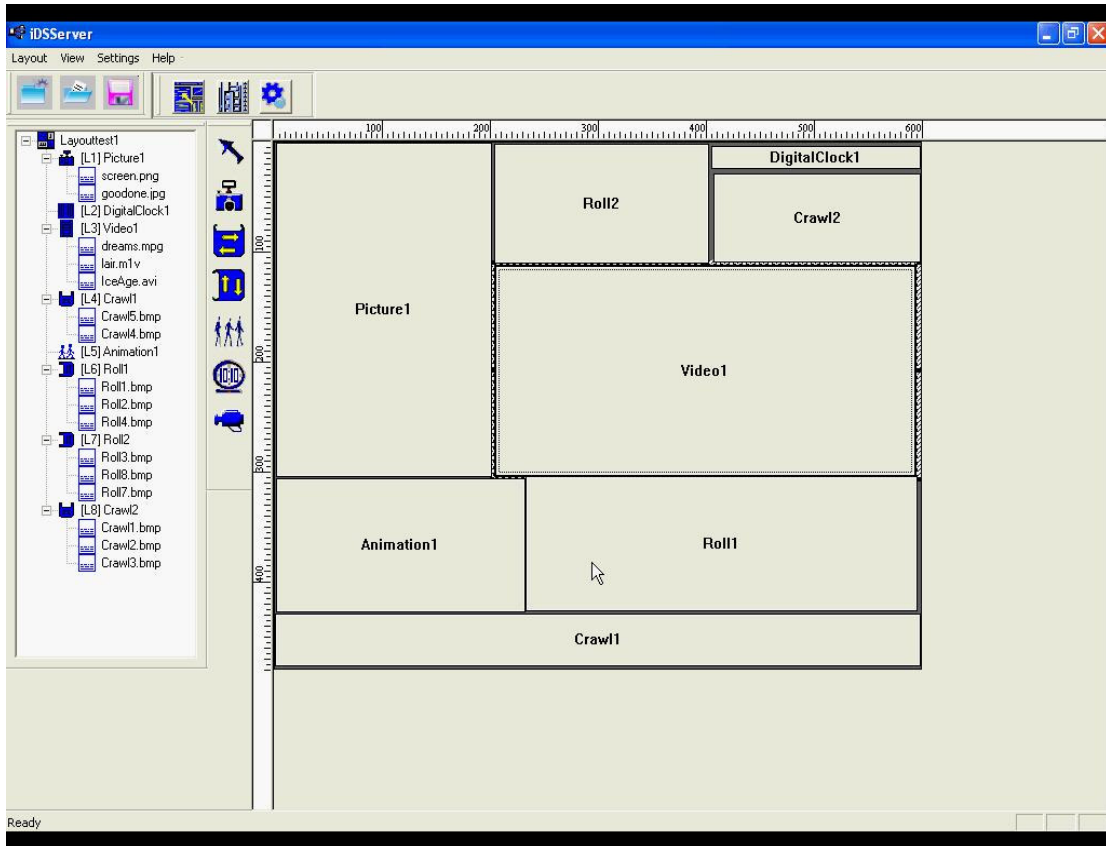
A server creates different location's digital signage programmes & it schedules when to display what. This is transferred & controlled by the Server. The server side the an application is used to create & launch the schedule of what & when the programmes( the movie, picture, banner, Animation etc..) needs to be played from the different client devices. Digital signage solution provides a powerful communications tool extremely easy-to-use, this solution is designed to quickly create dynamic layouts for the digital display of advertisements, schedules, info channels and more.

## Server Features:

The Server side application is developed on Windows Xp/2000. The client side the hardware is based on the Sigma Designs EM8620 board. User can create different playlist which can consist of layouts of video, banners, pictures, movie timetables etc & schedule for different clients.

When the playlist is created in the server, it can be transferred to the client. The client will be having a storage devices,like CF, Harddisk or USB Mass storage where the media contents can be transferred & played from.





In the server side a windows application is developed using VC++ which has following features.

- 1) Can design layout of your display, your way.
- 2) Arrange multiple layers of graphics, text, video, rolls, crawl, animations, clocks and logos in limitless overlapping zones.
- 3) Manage multiple, complex projects with different clients.
- 4) A project contains several pages of content and their respective scheduling data.
- 5) Can Easily manage the creation and output of entire projects or individual pages



- 6) Export projects to various clients
- 7) Can do Flexible Scheduling. Drag and drop to order sequences
- 8) Independently schedule each zone, including events based on specific times of day
- 9) Use the weekly scheduler to set the playout of complete projects or individual items on specific days
- 10) Powerful tracking capabilities allow you to track and log playback.
- 11) Remotely manage the content, permissions and schedules of multiple client displays over a wired LAN or Wireless LAN
- 12) Remotely update every client player in network with the new software versions as they are released.

## Client Features

Clients Side you can have different displays connected to different EM8620 boards, such as TV, Plasma TV, etc..





Client side the application is developed on uClinux with Sigma Designs SDK.

- 1) The Bootloader of the board was customized to include the OEM splashscreen.
- 2) uClinux with kernel 2.4.22 is customized to include necessary & needed modules like display drivers, block drivers, Ext2/Ext3, FAT filesystem support
- 3) RTC driver is developed
- 4) Wireless driver is modified to have support for WEP
- 5) Using APIs from SDK the Player applications are developed by which multiple pictures, videos can be run simultaneously.
- 6) Micro windows application is developed to play banners & digital clock
- 7) A program is developed which will invoke different players ( video, picture, banner, clock etc) for displaying the project according to schedule & different layouts of the screen .
- 8) Communication program is developed which will interact with server in getting the dynamic playlist & media contents & invoking the needed player application.
- 9) A logger application is developed which will log back the played playlist details to the server which maintains the played playlist database.

The Client side hardware specs are as follows -

H/W Processor	Sigma Designs® EM8620 (8621), 166 MHz 32-bit RISC, 8 or 4 MB Flash ROM, 64 MB DDR SDRAM Host and Video Buffer
Memory	8 or 4 MB Flash ROM, 64 MB DDR SDRAM, Flash Type
Network	Ethernet interface, 10-baseT/100-baseT, miniPCI card slot for IEEE 802.11a/b/g
OS	uClinux
VGA Output	Composite Video, S-Video, Component Video (Progressive and Interlace) / D4, VGA, SCART, HDTV, DVI
Audio	Stereo
USB	2.0 for Mass storage

Storage	IDE , USB storage, CF disk
---------	----------------------------

The following media files are supported on the client board -

**i. Video**

1. MPEG-1 VCD format (1.15 Mbps CBR) [.mpg, .mpe, .mpeg, .dat, .m1v]
2. SD and HD MPEG-2 up to 15 Mbps [.mpg, .mpe, .mpeg, .m2v, .vob, .vro]
3. SD and HD MPEG-4 (OpenDivX, XviD, RMP4) [.avi, .divx, .mov, .mp4]
4. SD and HD WMV9 [.asf, .wmv]
5. AVI audio codec : MP3, AC3, PCM, WMA

**ii. Audio**

1. MPEG-1 Layer 1 (MP1) [.mp1, .mpa]
2. MPEG-1 Layer 2 (MP2) [.mp2]
3. MPEG-1 Layer 3 (MP3) [.mp3]
4. Microsoft PCM Wave (WAV) [.wav]
5. Advanced Audio Coding (AAC, ADIF, ADTS) [.aac]
6. Apple MPEG-4 AAC Audio (M4A) [.m4a]
7. Microsoft Windows Media Audio version 1 and version 2 (WMA) [.wma, .asf]
8. Microsoft Windows Media Audio Professional (WMA Pro) [.asf]