

# IMX 1020HD IP Set Top Box



## High Quality Videos to TV Over Broadband

### KEY BENEFITS

Full IPTV (Internet Protocol TV) - Fast channel changing with channel preview capability (where available). Music download and online photo album. Ability to control the set-top box from via mobile phone or web browser. Caller id with full integration with phone book can be displayed on TV support.

Video on Demand (VOD) - Delivers on-demand DVD and HDTV quality videos to TVs over the IP network using advance mpeg 4 codecs such as wm9 and h.264.

Conditional Access - each set top box is authenticated via ip, user id and password. Smart card support is optional.

Easy Maintenance - No truck roll. Can be managed remotely

Anti-Piracy Security - Fully protected against video piracy by using user authentication, IP tracking, video deletion, Encryption, DRM and water marking technologies.

Electronic Program Guide - allows users to select videos based on different viewing categories and channels. Ability to search based on

iTV - advance iTV functions such as overlay for real time news and sports information.



### Next Generation internet protocol TV (IPTV) Technology

Broadband users can now experience the full power of IPTV. Users can enjoy broadcast channels in DVD and HD quality with fast channel switching and picture in picture features. Users can also pause live television where available. Users can enjoy interactive functions such as horse racing with real time scores and betting with multiple viewing angels. Users can listen to music downloaded from the internet in full Dolby digital AC-3 sound or view their favorite online photo albums on TV. Full integration with IP phone allows users to view caller id information and caller's name right on TV.

### Enjoy High Quality DVD/HDTV Video on TV without Compromise

Broadband users can use the IMX set top box to view high quality DVD and HDTV videos on their TVs and high definition TVs today. Users have access to the easy-to-use EPG (Electronic Program Guide), which allow users the ability to select different videos based on categories and channels. In addition, the IMX set top box allows high bandwidth users (1.5 Mbs+ access speed) to view videos in real time via live streaming.

### PUSH VOD functions

The IMX 1000 fully supports MatrixCast's PUSH VOD feature. This means broadband service providers can push popular video content to all the IP STBs before the viewers decide to play the videos. This feature can save up to 80% in bandwidth utilization on the IP backbone of the provider. Providers can set up business rules to deliver content to all the STBs intelligently without causing bandwidth bottlenecks.

### Protect Videos from Video Piracy

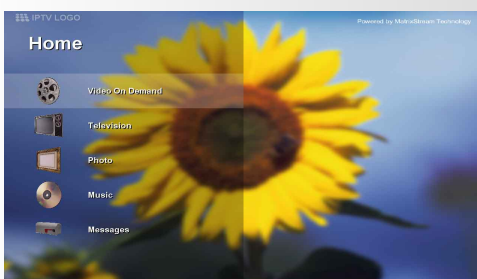
All the videos are encrypted end-to-end and protected by the IMX security system. All cached videos are fully protected against video piracy. Video content providers can feel safe that their videos won't be pirated over the Internet. Content providers have the option to control when to delete the cached videos from set top box's local hard drive. In addition, content providers have total control over the length of viewing period, per view or multiple views and set video viewing expiration period. The beauty of system is the operator can control how viewers view videos from the central IMX management server.

### Interactive TV (iTV)

The IMX set top box is an intelligent platform capable of many future features including interactive TV applications, VoIP, Games On Demand over IP, video conferencing and others. Some examples include news, weather, sports, customer care, banking, bill payment, caller id on tv, automobile, flowers, etc.) These future features provide additional revenue generating opportunities for service providers.

### Auto Provisioning

The IMX set top box has a built-in software update feature that will automatically keep the built-in software up-to-date with newest software features.



MATRIXSTREAM

# IMX 1020HD IP Set Top Box



## Key Features

### Technical Specifications

**Network Interface** n 10/100 Base-T Ethernet

**IR Communications** n infra-red sensor  
n IR Blaster(option)

**USB** n Two USB 2.0 ports

**Chassis size (LxWxH)** n 12.6" X 2.5" X 8.7" approx.  
n 320mm X 64mm X 221mm

**Power Supply** n AC 110V/60 HZ, 40W, 100 - 240V selectable

**Harddrive** n 80GB

**Ram/Firmware** n 128 MB with 32 MB DOM

#### Front Panel

- Power On/Off
- Indications, Power On/Off

#### Rear Panel

- LAN: 10/100 BaseT, RJ 45
- Connectivity: Two USB 2.0 ports
- Video: HDMI, S-Video, RCA composite, Y/Pb/Pr
- Audio: S/PDIF, Left/Right channel audio output
- Power: AC 110V/60 HZ, 40W, 115-230 switch

#### Streaming, Push VOD and download VOD support

n IP RTSP\*/ASF streaming Client with trickle play capability and OSD capability. Push VOD and Download VOD is optional.

#### Full headend encoder support for multicast broadcast

n IP Multicast Client using IGMP V2,V3. Support mpeg 2 Transport Stream\* or multicast ASF. Compatibility with Tamberg or Harmonic SD and HD encoders.

#### Audio Outputs

- R/L Audio Output
- S/PDIF (IEC 60958) serial digital audio output for 2.0 linear PCM and compressed Dolby Digital, DTS, WMA Pro and MPEG

#### Audio Formats

- 16-bit linear PCM with HDCD support
- MPEG-1 and MPEG-2 Layers I, II and III (MP3) 2.0
- MPEG-2 BC multi-channel Layers I, II and III 5.1
- MPEG-2 and MPEG-4 AAC-LC 2.0
- MPEG-2 and MPEG-4 HE-AAC 2.0
- MPEG-4 SBAC 2.0
- Dolby Digital 5.1
- DTS 5.1
- WMA9@L3 2.0, WMA9 Lossless 2.0, WMA9 Pro@M2 5.1

#### Streaming Video Formats

- n MPEG-2, MPEG-4
- n MPEG-1, MPEG-2 MP@HL up to 1920x1080i30 or 1920x1080p30 resolution
- n ISMA (Internet Streaming Media Alliance) MPEG-4
- n MPEG-4 Part 2 ASP@L5. Rectangular shape video decoding up to 1280x720p30 resolution, support for B Pictures, data partitioning and error resiliency.
- n H.264 and VC-1 AP over MPEG-2 Transport Video Decoding Standards
- n H.264 BP@L3 up to 720x480p30 or 720x576p25 resolution, including FMO and ASO
- n H.264 MP@L4.1 and HP@L4.1 up to 1920x1080i30 or 1920x1080p30 resolution
- n WM9 with DRM
- n WMV9/VC-1 MP@HL up to 1920x1080p30 resolution, progressive sources only
- n VC-1 AP@L3 up to 1920x1080p30 resolution
- n DVD-Video and Super-bit DVD
  - CSS decryption
  - 16:9 and 4:3 playback, letterbox, 3:2 pull-down
  - Multiple angles and sub-picture
- n Error concealment, de-blocking filter
- n Elementary video stream bit rate
  - MPEG-2 Maximum SDTV 15 Mbps and HDTV 30 Mbps
  - MPEG-4 Maximum SDTV 15 Mbps and HDTV 30 Mbps
  - H.264 Maximum SDTV 15 Mbps and HDTV 30 Mbps
  - WMV9/VC-1 Maximum SDTV 15 Mbps and HDTV 30 Mbps

#### Video Outputs

- n NTSC/PAL composite
- n NTSC/PAL s-video
- n Analog YPbPr / RGB
- n 150 MHz YCbCr / RGB digital video output interface
  - 8-bit 4:2:2 YCbCr data
  - 16-bit 4:2:2 YCbCr data
  - 24-bit 4:4:4 YCbCr data
  - 24-bit RGB data (888)
  - BT.601, BT.656, or VIP 2.0, "video valid" output signal
  - Master or slave timing

#### Video Output Resolution and Frame Refresh Rates

Resolution	Frame Refresh Rates
704/720 x 480i	29.97Hz and 30Hz
704/720 x 480p	59.94Hz and 60Hz
704/720 x 576i	25Hz
704/720 x 576p	50Hz
1280x720p	50 Hz, 59.94Hz and 60Hz
1366x768p	50 Hz, 59.94Hz and 60Hz
1024x1024p	50 Hz, 59.94Hz and 60Hz
1920 x 1080i	25 Hz, 29.97Hz and 30Hz
1920 x 1080p	50 Hz, 59.94Hz and 60Hz

#### Anti-copy Protection

- n Macrovision v7.1.L1 protection for NTSC/PAL composite, s-video and Analog YPbPr / RGB output



MATRIXSTREAM

e: sales@matrixstream.com  
t: 650-292-4982  
f: 650-292-4982  
www.matrixstream.com

MatrixStream Technologies, Inc.  
1840 Gateway Drive, Suite 200  
San Mateo, CA 94404  
U.S.A