# Tornado M70 Hybrid HD

**IPTV Set Top Box**

## PRODUCT OVERVIEW

Tornado M70 Hybrid HD is an innovative and feature-rich High-Definition set-top-box (STB), specifically designed for deployment in IPTV and Video-on-Demand infrastructures. The product features H.264, MPEG2, MPEG4 and WMV/VC1 video compression, which allows it to deliver high quality video streams over IP networks with low bandwidth utilization. Tornado M70 Hybrid HD supports High-Definition video up to 1080p resolution which offers a more exciting viewing experience, especially on large format TVs. Additionally, Tornado M70 Hybrid HD features a myriad of popular information and communication services, including Web browsing, calendar, YouTube, chat, email, Picasa, Google Maps, calculator, stock quote information and more. Tornado M70 Hybrid HD also supports satellite and cable networks in parallel with IPTV networks to allow concurrent media service using its DVB and IPTV interfaces. This is extremely useful to satellite and cable operators to enter the IPTV service and support VOD/PPV and other Internet online services.

## Unicast and Multicast operation modes

The STB can operate in several modes to allow universal device deployment: Multicast mode allows deployment in closed Local Area Networks (LAN) where all video/audio content is received in multicast format; Unicast mode allows implementation in Open Wide Area Networks (WAN) and Internet where the video/content is received from remote location and using secure and reliable network connections. The Unicast mode can be achieved using TCP or UDP protocols to guarantee maximum image quality and uninterrupted operation. To prevent interruptions, M70 also supports internal data buffering.

## IPTV and Video-on-Demand Support

Tornado M70 Hybrid HD offers delivery of streaming video content, including IPTV and Video-on-Demand (VoD) directly to the TV screens of end-users. The device receives H.264, MPEG4, MPEG2, WMV/VC1 encoded video streams over broadband connections. It then decodes such streams internally and sends the resulting video signal to the TV set of the end-user.

## H.264, MPEG4, MPEG2 Support

Tornado M70 Hybrid HD supports low bit-rate H.264 video compression technology which substantially reduces its bandwidth requirements. Compared to older video compression technologies, H.264 offers better video quality at substantially lower bit rates. Because of more efficient bandwidth utilization, Tornado M70 Hybrid HD enables providers to reduce the cost of delivering services to subscribers. Tornado M70 Hybrid HD also supports popular MPEG4, MPEG2, Windows Media video compression technologies.

## ■ KEY FEATURES

- ☐ Unicast and Multicast operation modes
- ☐ IPTV and Video-on-Demand Support
- ☐ Digital Music and Internet Radio Delivery
- ☐ H.264, MPEG4, MPEG2, WMV/VC1 Support
- ☐ High Definition Support
- ☐ Online Web Browsing
- ☐ YouTube, Google Maps, Picasa, Chat, Email Services
- ☐ Optional DVB-T USB Tuner
- ☐ Optional 802.11b/g/n Wi-Fi USB Adapter
- ☐ Media Center Functionality
- ☐ Dolby 5.1 S/PDIF Audio Support
- ☐ Progressive Download Support
- ☐ Support for All Popular Streaming Protocols
- ☐ Hybrid DVB-S2 and DVB-C Support
- ☐ Integrated Smart Access Card Reader
- ☐ Support for multiple decryption protocols
- ☐ JavaScript API and Adobe Flash Lite v.3 API Interface Support
- ☐ 100+ Over-The-Top (OTT) and Free-To-Air (FTA) Channel Support *
- ☐ TV Remote Management

## Digital Music and Internet Radio Delivery

Tornado M70 Hybrid HD also supports delivery of streaming audio content, enabling end-users to enjoy digital  music and Internet radio channels on their TVs. The product utilizes high audio compression MP3 technology for maximum quality of the delivered audio content.

## High Definition Support

Tornado M70 Hybrid HD supports High Definition (HD) video at resolutions up to 1080i.That allows it to deliver video with greater detail, realism and quality, especially to large format TV screens. High Definition video signal from Tornado M70 Hybrid HD is delivered to the TV screen via either HDMI or composite cable.

## Online Web Browsing

Tornado M70 Hybrid HD enables end-users to browse the Internet while watching their TVs. The Web browser requires the use of USB keyboard and mouse.

## YouTube, Google Maps, Picasa, Chat, Email Services

Tornado M70 Hybrid HD supports a variety of web enabled services such as YouTube, Google Maps, Picasa, Chat, and Email. The system provides physical or virtual keyboard to access these services and fully interact with their interfaces.

## Optional DVB-T USB Tuner

Tornado M70 Hybrid HD supports a DVB-T USB tuner to allow subscribers to receive FTA DVB-T terrestrial digital television. The DVB-T tuner will support auto scan and list available terrestrial channels automatically under the PPV/DVB Folder.

## Optional 802.11b/g/n Wi-Fi USB Adapter

Tornado M70 Hybrid HD supports an optional high-performance USB Wi-Fi adapter that can connect to any type of 2.4 Ghz network. In addition, the adapter supports AirStream functionality to allow IPTV distribution via Wi-Fi with high channel capacity and large number of subscribers.

## Media Center Functionality

Tornado M70 Hybrid HD offers to end-users convenient access to content stored on attached USB hard drive or USB memory. The device offers 2 USB ports that can be used to connect external storage to store and view video and audio data content thus providing data library services. When the end-user selects a file from that media library, Tornado M70 Hybrid HD will play it on the TV. In addition, M70 Hybrid has an integrated client that will allow Local PC computers to write and read data files from/to the device for media library management purposes.

## Dolby 5.1 Audio Support

Tornado M70 Hybrid HD supports the Dolby 5.1 Audio standard for exceptional sound quality. The Dolby technology allows up to 6 channels of surround sound to be delivered to end-users. An established standard for high end home theatre systems, surround sound is gaining wider adoption in modern IPTV systems.

## Progressive Download Support

Tornado M70 Hybrid HD supports progressive download to allow flexible and error free play of real-time and video files. The device will adjust its download based on current network configurations to ensure that the IPTV will play flawlessly even in environments with non-guaranteed or traffic shaped networks. This procedure ensures perfect play in all types of broadband environments.

## Support for All Popular Streaming Protocols

Tornado M70 Hybrid HD supports all popular streaming protocols such as FLV, RTSP, RTMP, UPD, HTTP, HLS, MMS, AVI, Progressive Download. The device ensures compatibility with most popular streaming servers in any type of unicast and multicast environment.

## Hybrid DVB-S2 and DVB-C Support

Tornado M70 Hybrid HD STB can interface in parallel to DVB-S2 or DVB-C networks as well as IPTV networks. The STB devices will allow satellite and cable operators to provide additional IPTV services, in conjunction with existing DVB network, specifically targeted at VOD and PPV content. This way the device can receive traditional DVB channels using the DVB interface, and at the same time have access to IPTV VOD/PPV channels, OTT (over-the-top) content, and advanced Web-enabled services such as YouTube, Google Maps, Picasa, etc.

## Integrated Smart Access Card Reader

Tornado M70 Hybrid STB supports an integrated Smart Access Card reader to allow integration with multiple decryption protocols and card management services. The device can be also used in client-server environment to allow card sharing.

## Support for multiple decryption protocols

Tornado M70 Hybrid STB supports multiple decryption algorithms typical for the DVB-C and DVB-S/S2 environments. The decryption is either done locally using the Smart Card Reader or remotely using a remote card server or sharing service. The card sharing service can be enabled and disabled centrally if required.

## JavaScript API and Adobe Flash Lite v.3 API Interface Support

Tornado M70 Hybrid HD supports advanced JavaScript/HTML API and Adobe Flash Lite v.3 interfaces to allow easy programming for the device. Companies can program custom interfaces using direct HTML template modification or create their fully proprietary JavaScript or Adobe Flash Lite v.3 interface.

## 100+ Over-The-Top (OTT) and Free-To-Air (FTA) Channel Support *

The server includes over 100 built-in OTT and FTA channels that allow service jump-start with a large number of pre-defined channels. In addition, the OTT channels do not require bandwidth support because the STB devices will access them directly without connecting to the Streaming server. OTT and FTA channels are great IPTV service complement that provides better channel variety and selection.

## Technical Specifications *

### Connectors/Interfaces:
- One Ethernet (RJ-45) 10/100M Port
- One DVB-S/S2 or DVB-C Port
- Two USB 2.0 Ports
- One HDMI Port
- One Composite Port
- One YPbPr Port
- One L/R Audio Port
- One Infra Red (IR) Interface
- CPU Dual Core 400 Mhz
- One Audio S/PDIF Port
- HD Digital Signal Procesor

### Video Codecs and Formats:
- H.264
- MPEG4
- MPEG2
- DVX
- AVI
- WMV/VC1
- FLV

### Audio Codecs and Formats:
- Mp3
- AC3
- Dolby Digital 5.1
- 16bit Linear PCM with HDCD Support

### Resolution:
- H.264: Up to 1920x1080i at 30fps
- MPEG2: Up to 1920x1080i at 30fps
- MPEG4: Up to 1920x1080i at 30fps
- DIVX: Up to 1920x1080i at 30fps
- WMV: Up to 1920x1080i at 30fps

### Protocols:
- UDP (RFC768)
- TCP (RFC793)
- IPv4 (RFC791)
- ARP & RARP
- DNS
- DHCP (RFC2131)
- PPPOE (RFC2516)
- NTP (RFC 1889)
- IGMPv1, v2, v3 (RFC1112, RFC2236, RFC3376)
- IGMP
- BOOTP
- RTP/RTCP
- RTSP
- HTTP
- RTMP
- HLS
- MMS
- FLV
- AVI
- PROGRESSIVE DOWNLOAD

### Dimensions:
- 9.4" (W) x 1.2" (H) x 6" (D)

\*  Specifications subject to change without notice.