## About Adtec

Adtec Digital is a world-leading designer and manufacturer of innovative technology for ad insertion, digital television delivery, IP television delivery and multimedia digital video applications. Our commitment to continual development of new and innovative technology, coupled with twenty years of experience gained from delivering this technology globally to competitive and diverse markets, positions us to assume leadership in these markets without compromising our reputation for value. Adtec Digital offers customers rock solid engineering, powerful features and the ability to generate unmatched bottom line revenue.

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Adtec Digital's
IPTV
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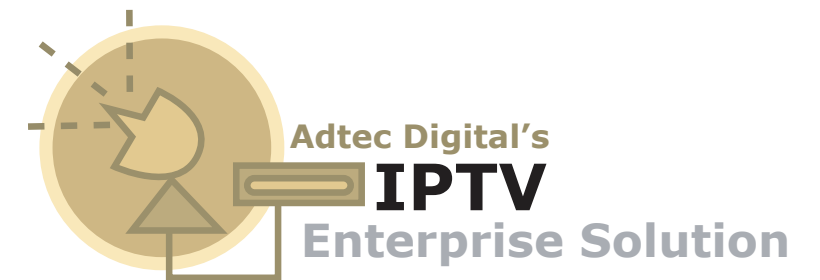
Adtec Digital's enterprise-level IPTV solution provides leading technology with unmatched value. Internet Protocol Television (IPTV) is rapidly developing as the next distribution platform for delivering television services for educational, medical, enterprise, military and residential applications. The compelling force behind IPTV is leveraging existing IP infrastructures like Ethernet, xDSL, Fiber or similar broadband networks to deliver television adjacent to existing services - including telephone and broadband Internet to complete the "Triple Play". As television migrates toward an on-demand model, IPTV is BEST suited to deliver interactivity, innovative and enhanced security, and media management. IPTV will ultimately provide lower costs for operators and consumers while making content easier to access and advertising more targeted and effective. The Adtec Enterprise IPTV Solution provides a flexible and reliable solution that can grow with your needs and the advances of the industry. You can be sure that your investment is going to be future proof.

ADTEC
Digital

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Simplifying IPTV - Legend

(1) Digital Turn Around

Adtec's Digital Turn Around routers are designed for the aggregation of ASI from receivers, ATSC off air, QAM cable, and QPSK Satellite delivered services. The DTA 3050 supports 10 ASI inputs, each capable of 211 Mbs. The DTA 3250 features dual ASI, QPSK, and ATSC or QAM configured inputs. The DTA 3254 features quad ATSC or QAM configured inputs and dual ASI inputs.

Some standard features include PID remapping, modification and/or removal of tables and services, add-drop or rename, retiming of PCR and distribution via ASI or UDP over IP. The DTA series is compatible with MPEG 2 SD and HD as well as MPEG 4 Part 10, commonly known as Advanced Video Coding (AVC) SD and HD. Redundancy options are available.

(2) Media Ingest and Ad Insertion

Adtec's adCode encodes and decodes MPEG 2 SD in real time. This media ingest station is designed to frame accurately capture video and audio in a fast-paced, high performance production environment. A variety of audio and video inputs and outputs are included and control for RS422 and DV based VTRs is standard. Encoding media for Video-on-Demand, Digital Program Insertion, and other long form playback applications including DVD are tasks ideally suited for it's use.

Adtec's DPI-1200 interfaces with standards based splicers to provide seamless splicing into Digital MPEG 2 and MPEG 4 (AVC) network transports. Each Ad Server is designed to concurrently insert up to twelve programs and multiple Ad Servers can be combined for an unlimited number of inserts.

When analog ad insertion is needed, Adtec's industry leading Duet Ad Inserter provides network switching, ad storage and playback for a seamless ad insertion solution. A Duet, paired with an Edje encoder with IP output, provides a single channel, modular solution for analog ad insertion in IPTV.

The entire Ad Insertion enterprise is configured and managed by adManage. This enterprise application provides system configuration, system monitoring, alarms, and the assurance that your valuable inventory of media will be inserted correctly whether using Duets, DPI's or a combination of inserters and adCode for media ingest.

(3) Local Encoding

The edje-2000 is a broadcast quality real time MPEG 2 SD encoder offering exceptional value. It's ideal for local program encoding at low bit rates and with the ability to place up to 4 encoders on 1 RU shelf, it's compact size makes it easy to deploy and maintain.

The edje-2100 is a broadcast quality real time MPEG 2 SD encoder with secondary audio support and a front panel LCD and keypad. It has additional support for Dolby Digital AC-3 audio encoding.

As part of Adtec's Enterprise IPTV Solution, the edje 2000 and edje 2100 can provide local encoding for managed IP delivery to Adtec decoders or IP delivery to set top boxes.

(4) Conditional Access (CA)

Conditional Access is a requirment for most major program providers. Adtec's DTA's include AES encryptors to protect the transport payloads prior to their distribution into an IPTV network. The DTA conforms to the Ethernet Simylcrypt CA interface. This provides an open standards based interface for CA vendor Subscription Management Systems (SMS) and the DTA to communicate. In an IPTV implementation of CA, the CA SMS typically communicates with the Set Top as well using SSH with some type of certificate.

(5) Managed IPTV & Set Top Box Delivery

edjeGuide is an open standards HTML and Java bases electronic program guide (EPG). This IPTV middleware server is designed to provide a visual guide and programming for informed, efficient and easy channel changing. Navigation through program categories and optionally extended programming data can be included with a subscription to Tribune Media Services. Interfaces for Video-on-Demand are also available.

edjeGuide has two basic operating methods, pull and push. When pulling, a user selects programs from the HTML guide on the television. Pushing is used when the channel change is managed via a standard computer based browser to select a channel and decoder (Adtec). Schedule based Push tuning is also provided.

Box provisioning, management, and channel configuration are available via password protected HTML interfaces. Automatic new box identification, and box firmware management are included.

*See each model's specification sheet for more details.

IPTV Considerations

When considering IPTV as a method of Digital Television (DTV) delivery, there are many factors to review. IPTV must be primarily viewed as an enabling mechanism for distribution of television and advanced services in residential, enterprise, medical, educational, military, and other network enabled applications. The average required bandwidth per viewing node is roughly 30 Mega bits per second (Mbs). This provides support for 1 MPEG 2 HD, 2 SD, T1 data speed, and many VoIP services concurrently. Is your network capable of this? If so, then use of the mature, established, and pervasive MPEG 2 is acceptable and actually preferred based on economics and maturity. If you cannot sustain this bit rate per node, you should consider using MPEG 4 Part 10 (AVC). It is certainly the encoding standard of the future and it will offer a 25% bandwidth savings on SD and nearly 50% savings on HD services. Assess your objectives and budget accordingly prior to deciding which standard best fits your current and future requirements. Just as Analog and Digital TV coexist today, MPEG 2 and MPEG 4 will interoperate on IPTV systems for the foreseeable future.

Another important consideration is your Set Top Box vendor. In the same manner that you mix headend vendor gear, Adtec believes using multiple set top box vendors is key. Select a vendor that falls within your budget while offering value and capabilities required today and tomorrow.

Conditional Access is essential, not an option. Be certain that both transport and affiliate rights are negotiated with the program providers. Having a network, headend, CA, and IP Set Top will do nothing without content.

With all of this in mind, approach IPTV with the basic business fundamentals used when reviewing other capital expenditures. Be patient and meter your expectations, have reasonable ninety-day, six-month, and one-year objectives. Now that IPTV has asserted itself as viable technology, it's time to consider how you can put that technology to work for you.

(1) Digital Turn Around
- DTA 3250 Input Option
- IRD X 2 ASI
- ATSC - QAM X 2
- DTA 3254 Input Option
- ATSC - QAM X 4
- IRD X 2 ASI
- IRD 1- 10 ASI
- DVB-S X 2
- DTA 3050 Input Option

(4) Conditional Access (CA)

<< IP >>

A S I

(2) Media Ingest and Ad Insertion
- adCode Media Ingest Server
- >> ASI >>
- Splicer
- TBGS w/ adManage
- DPI 1200 Ad Server
- Duet Ad Inserter
- << IP >>
- A V

(5) Managed IPTV & Set Top Box Delivery
- edjeGuide IPTV Server with Decoder Control Application
- VOD
- << IP >>
- IP
- << IP >>
- IPTV Layer 2 Aggregated VLAN
- IPTV Layer 3 IGMP
- Adtec Decoders
- IPTV Layer 3 IGMP
- Multicast Enabled IP Network

(3) Local Encoding
- Edje 2100 w/Dolby Digital
- Edje 2000

- Set-Top-Box

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