

Given that some vendors have established product, while others are more recent entrants, *IPTV International* asked a selection of STB manufacturers to reveal their perception of the market place and future developments.

IPTVi: Has your company launched an IPTV set-top box or are you planning a launch? If so, which quarter/half of which year?

Eagle Broadband: We have three IPTV set-top boxes currently in production, one Standard Definition STB and two High Definition STBs, one of which we announced just in June.

Humax: We launched the RG-100, an IP set-top box, in 2005 for the German market in order to access T-Online services. The TH-110 IP set-top box was launched in the second half of 2005 for Korea Telecom. In addition, the new TS-110 IP set-top box, which will be showcased at IBC 2006, will be launched in early 2007.

Netgem: We have been a leading supplier of IPTV set-top-boxes for several years. We were among the first to introduce hybrid models in 2004 and PVR hybrid models in 2005. We kept this leadership in 2006 by launching in Q2 the netbox 7600 series, our new generation of HD MPEG4/MPEG2 set-top-boxes.

Pace: Our focus is now on developing, launching and supplying the next generation of IPTV products, MPEG-4, HDTV, DVRs. Pace's mission is to become the major worldwide supplier of IPTV set top boxes by 2010 by providing technological leadership. IPTV home digital devices will need to increasingly reflect the movement from dumb terminals as merely an extension of network to products extending service delivery capabilities and they must increasingly support the means by which content enters and leaves the home over many devices and from many sources. As a provider of over 24 million set top boxes in cable, satellite and cable we believe we are uniquely positioned to demonstrate that leadership.

Philips: Products are in trial deployment; launch Q3 2006.

Sagem: We deployed our first IPTV STBs in December 2003 (MPEG-2 IP PVR). We then launched an IP basic STB in 2004, and we achieved a world first in November 2005, with the first commercial roll-out of a single chip MPEG-4 IP STB. Finally, we launched an MPEG4 HD Hybrid IP/DTT STB in May 2006.

Sunniwell BDS&T: We are delivering IP STBs. Our first generation IP STB was launched in 2001. At this moment we are in our third generation.

Telsey: First IPTV Set Top Box in launched 2001.

IPTVi: If you have launched a product, who are your customers?

Eagle Broadband: Our initial customers for our IPTV STBs have

been in the hospital-ity industry, but we have signed IP-aggregator IPTV customers and expect to be rolling our STBs out to them in a few months as we launch our IPTV service in Florida.

Humax: As above

Netgem: Among others, Neuf Cegetel, AOL, Tele2, Erenis.

Pace: Naturally we are engaged with a number of high profile IPTV



IPTV ST

The emergence of IPTV has provided the set-top-box industry with another route to market as telcos and ISPs look towards broadening their service offering. *IPTV International* looks at how the industry is responding to the opportunity.

operators but are under strict non-confidential agreements with them.

Philips: We have announced the delivery of our products to BT

Sagem: France Telecom, Siminn (Iceland Telecom), Telecom Italia France, Free, TPSA (Poland), Sonatel (Sénégal), Mauritius Telecom, Wanadoo Spain, SIOL (Slovenia).

Sunniwell BDS&T: We have delivered STBs in volume to HKBN starting 2005. From 2003, on we delivered IP STBs to 30,000 Hotel rooms and at this moment we have signed deals with several operators globally who will start delivering our products for commercial launch in Q3 and Q4 of this year.

Telsey: Our most important customers are FastWeb (Italy) and Telecom Italia (Italy)



IPTVi:
Can you provide shipment figures?

Eagle Broadband: Unwilling to do so.

Humax: Several thousand units of the RG-100 and the TH-110 have been deployed to date. However, there are plans in place to deploy a significant volume of the new TS-110 by the end of next year.

Netgem: Our forecasts for 2006 are 250,000 STBs.

Pace: Sorry, no. We have previously shipped to Kingston Communications in Europe, Chunghwa Telecom in Taiwan and Sasktel in Canada.

(MPEG-2 SD), 5120 model (H264/DVB-C Hybrid SD) and 6200 model (H264 HD). These are shipping products from stock and available in any volume.

Telsey: We support both. However, with regards to the question of service provider versus retail model (see below) with the rapid change in IPTV technology and the various features and functionalities each IPTV service offers, we don't see STBs standardised any time soon. This means that in the foreseeable future STBs will only be distributed by service providers directly. This is in contrast to DTT (digital terrestrial TV) technology, which is standardised (DVB in Europe and most of Asia, and ATSC in U.S. and Korea), and sees its STBs distributed through retail channels.

IPTVi: Do you expect a retail model to develop, or will STBs always be supplied through service provider?

Eagle Broadband: In the short term, we expect them to be supplied through a service provider; in the longer term, we expect them to be built into the TV's, per-

haps as a plug-in card. Consequently, we don't expect a retail model to develop at all.

Humax: To date, the focus has been on meeting service provider requirements, however, I can see a model in the future that will develop through retail as more content becomes available on the web that can be watched on TV.

Netgem: Several models will be in place on the market. The service provider will keep a very important role, as consumers need simple packaged propositions in an ever-increasing complex and convergent world.

Pace: This will depend on the operator's business model, which has tended to be the rental model thus far. As self-installation products become more of a reality this may open up the opportunity for operators to reduce truck rolls with a self-installation unit in the same way as broadband subscribers tend to set up their own modems today.

Philips: Not immediately; however several telcos and ISPs have expressed interest - so it could move there over time

Sagem: Today, the main distribution model is through service providers, but should they decide to also address their customers through retail, we are able to 'follow' them, as we are familiar with this distribution channel, through our leading position on DTT STBs in Europe and also with our other products such as mobile phones, faxes, DECT phones, photo printers, etc.

Sunniwell BDS&T: We suspect a retail model will develop, starting mainly for high-end products combining HD and High-end audio. We see most service providers

Survey

Sagem: End of July 2006, over 1,000,000 would have been delivered, with more than 300,000 in MPEG4.

Philips: We never provide shipment figures.

Sunniwell BDS&T: We have shipped 220,000 units.

Telsey: 300,000 from 2001 to mid 2006.

IPTVi: Do you have existing deployments? If so, with which telcos or ISPs?

Eagle Broadband: Several hospitality VOD integrators, including at luxury hotels in Las Vegas.

Sunniwell BDS&T: HKBN is our primary deployment and several ISP's are using our product for upcoming commercial launch.

Telsey: Mainly FastWeb and Telecom Italia (Italy).

IPTVi: Do you have both MPEG-2 and MPEG-4 variants available?

Eagle Broadband: Yes, but we're pushing MPEG-2 at the moment because that's how we deliver our IPTV channels.

Humax: Yes, our range covers both.

Pace: All our previous shipped products have been MPEG-2. Going forward, we intend all our products to be MPEG-4.

Philips: Many telcos and ISPs focus on H.264 products; Philips provides a product which can handle H.264 SD + HD and MPEG-2 SD.

Netgem: Yes, MPEG-2 with our netbox 6600 series and HD/SD MPEG-2/MPEG-4 with our 7600 series.

Sagem: Yes.

Sunniwell BDS&T: Our product line consists of the 3300 model

Consolidation likely for IPTV STB Vendors

Following the January 2006 acquisition by Motorola of Kreatel, which was preceded by the November 2005 purchase of Scientific-Atlanta by Cisco Systems, research and consulting group The Diffusion Group (TDG) suggested that the '500 pound gorillas' had officially arrived.

"This is a 'good news/bad news' proposition for the remaining IPTV STB vendors," commented Colin Dixon, senior analyst, director of IPTV Practice. "The good news: their market is now large enough to warrant the attention of the big boys. The bad news: they demand a huge share of the market!"

Dixon considered it surprising that Motorola and SA moved so dramatically and quickly in the direction of IP. "Unit volumes of IPTV STBs will remain relatively modest for the rest of 2006 and it's likely that their share of this small number will remain relatively low," he said "For example, Cisco/SA's 2005 win of SBC/AT&T, as well as any new contracts won in 2006, will not deliver in quantity until 2007 or later. Among the IPTV projects currently underway, companies such as Amino, Thomson, Entone, and Humax will continue to enjoy early market success and healthy growth in unit volumes shipped."

He suggested that the Motorola/Kreatel and Cisco/Scientific-Atlanta unions were never simply about IPTV set top boxes; they had much more to do with the battle for the digital home and gaining a foot hold in the digital lives of consumers. If they were to make a serious play for the digital home and connected consumer markets, an IP STB would be a critical part of that strategy.

According to Dixon, given the trend toward greater market consolidation, the future of the independent IPTV STB maker looks bleak. The early IPTV STB market has been populated by a number of smaller players, but when established players and old-world market behemoths such as Motorola and SA begin to move, acquisition and alignment become key survival strategies.

For 2006, TDG has forecast that current vendors will continue to see healthy growth as shipments are expected to increase 100% over 2005. However, growth is expected to stall in 2007 and decline dramatically through 2010. Non-aligned STB vendors will be left to fight over one million STB shipments in 2010 while the top two vendors will deliver nearly 90% of the 10m units expected to be shipped that year.

In terms of possible consolidation, TDG identifies "a number of interesting pairings." It notes that Amino has had a very close relationship with NEC for most of its life and the two continue to be close partners with several customers. Humax, the Korean STB maker, has enjoyed early success in markets around the world but lacks the reach and product depth of the much larger Korean company, Samsung. Telsey has seen a lot of success with FastWeb in Italy and might be a valuable addition to Alcatel or Nortel as they ponder how to respond to Cisco's purchase of Scientific Atlanta. TDG expects a number of these potential pairings to evolve from interest to courtship and ultimately to acquisition in the next 12 to 18 months.

TDG's advice is that there are a variety of well-funded, established companies that are or will soon join the battle for the digital home and connected consumer. "Independent IPTV STB vendors would be wise to seek these players out and attempt to develop close relationships with them as quickly as possible. Simply stated, as the consolidation intensifies, alignment means survival. The consolidation game is underway, and when the music stops, you don't want to be the one left without chair!"

sponsoring a 'cheap' box only (entry level model).

Telsey: Through service providers until 2007.

IPTVi: What are the implications of HD for IP STBs?

Eagle Broadband: We do HD STBs now. In our experience, HD is a key driver behind IP STBs and IPTV because HDTV have caused consumers to focus on picture quality issues.

Humax: We are very much focused on HD developments and this is no different for our IP products. The new TS-110 is in fact an HD-capable box.

Netgem: We believe that the next generation of STB has to be HD compliant. The flat screen market is booming and oblige content providers to deliver higher quality content for a larger screen display. The TV offers of tomorrow will have HD components.

Pace: Improved network infrastructures and widespread deployment of MPEG-4 means that typically an 8MB HDTV stream will become increasingly prevalent and there is no doubt that the enhanced consumer experience which HDTV provides will be a value-add in the competitive pay-TV world. In addition, as HDTV boxes are backwardly compatible to SD, it makes sense for providers to buy HDTV boxes even if they may not be upgrading their services for a year or two. No IPTV provider will want to change all the SD boxes out to accommodate HDTV at a later date if they could have foreseen it at an earlier stage of deployment.

Philips: The step from MPEG-2 to H.264 codec has a significant implication for the STB - specifically with reference to the chipset; once the step to H.264 has been made, the impact of also using HD is not that big as the chipsets for H.264 can handle also HD. The

implications for the network are, however, bigger.

Sagem: HD ready chipset, HDTV (EICTA Standard) compliant.

Sunniwell BDS&T: As HD is a fully digital experience we see the move from consumers to HD as the main driver for the IP STB market.

Telsey: Our opinion is that HD will make the STB suitable for Push-VoD (multi-platform models), PVR and TSTV applications, and the central device for multi-room PVR. STBs have to include HD.

IPTVi: Is price the main deciding factor among clients?

Eagle Broadband: Price isn't the main deciding factor for our customers - STB reliability, picture quality and TV integration features are the top drivers. However, price is right up there and we need to be 'in the ballpark' on price to be considered for the other issues.

Humax: All criteria for vendor selection is same for IP as with other platforms - based on features, delivery and price.

Netgem: No, as customisation, evolutionary capacity, associated service and QoS are and critical criteria in IPTV projects. Yes, as TV is more and more part of the basic triple play offer: volumes are therefore higher, which leads to an increased pressure on prices.

Pace: Given the size of investment in IPTV, getting the right set-top box at the right price is obviously a key issue for operators but it is not the sole consideration. The development of key trends in the market is key to reducing churn and maximising ARPU.

Philips: Price is always a big decision factor - being future proof is in many cases a bigger decision factor; replacing an installed base of products is always very expensive.

Sagem: Availability and time to

market, Quality of Service are also key decision factors.

Sunniwell BDS&T: Yes.

Telsey: Price is one of the most important buying factor for Providers.

IPTVi: Will you have a 'DVR included' model?

Eagle Broadband: We have a 'DVR included' HD STB model today.

Humax: Our development roadmap for the IP product group will expand to include PVR/ DVR models, in line with our other platforms.

Netgem: We are considering this option.

Pace: There is an increasing need for DVRs and in the case of HDTV this is the obvious solution to cost effectively storing and replaying high definition recording without losing quality.

Philips: The BT product will include a hard-disk drive for DVR functionality.

Sagem: We have this already.

Sunniwell BDS&T: We will have a model that has local storage.

Telsey: Not yet.



Pace Micro Technology's TIP850 IP set-top box made its debut at IBC 2006.

IPTVi: What role will hybrid boxes play?

Eagle Broadband: We perceive hybrid boxes to have an interesting transitional potential for a few years. How much potential and how few years are issues that we're still assessing. It really depends on how quickly the market decides on rewiring to leave co-ax behind in its shift to cat-5 or further on to wireless.

Humax: The hybrid model is likely to be a key driver for this technology, enabling operators to maximise their platforms to enable the consumer to access a raft of new content, including video on demand. Humax has already launched a hybrid product that is available in the German market, enabling both the reception of free-to-air satellite services and access to T-Online pay TV content.

Netgem: Very important: why bear IP distribution costs for channels already available via another established distribution mode? IPTV operators will prefer to prioritise their investments on other differentiating features of their offers such as on demand content or convergent services.

Pace: Hybrid boxes will work effectively in two distinct market sectors. On the one hand broadcasters who today are transmitting in DVB-C, S, or T will increasingly require an Ethernet port on the box and start to use that IP functionality to handle video. Pace is well positioned in the broadcast pay television market today to work with its customers to support this extension of services to the consumer. On the other hand IPTV operators will require IPTV boxes where the IP

element is dominant but also prefer to add, e.g., a DTT front end to give the consumer greater choice. Pace has successfully deployed commercially both DVB and IPTV solutions, which is particularly vital as the role of hybrid units moves into its next phase. Included in that expertise, is our extensive experience of working with partners throughout the delivery chain.

Philips: We believe that hybrid boxes will be very important for the IPTV market; broadcast will continue to play an important role for the coming years; it is not yet economic to distribute all content via IP over a DSL network.

Sagem: Today in France (one of the world's leading countries for deployment of IPTV), all new IP STBs deployed are Hybrid IP/DTT STBs

Sunniwell BDS&T: There are two roles for hybrid. One is for the cable operator world where DVB-C is already implemented. This world will not easily invest in IPTV and in many cases to deliver a full package on IPTV and DVB-C has an enormous impact on the network of the operator. The other hybrid solution is DVB-T where ISPs do not have the facilities for a full stream IPTV package over the network. Interactive services and broadcast are separated by technology.

Telsey: An important role: multi-platform devices will help different operators to deploy IPTV and other DVB-x contents, supporting different business models (for example cable-to-DSL transition, DTT broadcasting together with IPTV VoD, etc).

Global IPTV Set-Top Forecasts

IPTV STB Volume	2005	2006	2007	2008	2009	2010
STB Volume Top 2 Vendors (Units Shipped)	94,530	295,875	864,285	3,913,560	6,093,872	9,031,860
STB Volume for the Other Vendors (Units Shipped)	850,770	1,676,625	2,016,665	978,390	910,579	1,003,540
Market Share of Top 2 Vendors	10%	15%	30%	80%	87%	90%

Source: The Diffusion Group

STBs: double-digit growth forecast

In a recently-published report - *The Worldwide Market for Digital Set-top Boxes & iDTVs, 2006 Edition* - IMS Research estimates that approximately 96m digital STBs were shipped in 2005, and suggest that 200 million units will be shipped in 2011.

According to IMS, the market for digital set-top boxes is headed towards strong growth as satellite, cable and terrestrial operators worldwide will focus on the mass digitalisation and upgrades of their pay-TV platforms to promote the adoption of advanced service offerings such as VOD, HDTV and DVR.

Analyst Mark Meza of IMS Research said that basic digital set-top boxes would retain a majority share in the worldwide market for years to come. "However, more pay-TV consumers are trending towards higher-end, advanced set-tops that will accommodate advanced services such as DVR and the growing number of HDTV channels becoming available on a variety of digital platforms." In addition, multiple set-top box homes, and the growing popularity of home networking systems will both help fuel this sustained period of growth for digital set-tops.

Meza suggests that a substantial amount of this growth will be driven by basic set-top boxes, thanks to rapid market uptake of digital terrestrial TV and free-to-air satellite. The success of these two platforms has spurred a number of new companies to enter the set-top box market.

IMS also notes that hybrid digital set-top boxes, typically a combination of satellite and IP or digital terrestrial and IP reception capabilities

Worldwide shipments of digital set-top boxes will more than double over the next five years, according to market research firm IMS Research.

are becoming more prevalent. Due to the fast-rising popularity of both digital terrestrial and triple-play services within its populace, Europe led the market in 2005 with over 225,000 hybrid units shipped. The Americas have been slow to embrace hybrid set-tops, with an estimated 59,000 hybrid units shipped in 2005.

Paul Eriksson, market analyst - digital consumer and broadband Group at IMS, further notes that though Europe is expected to remain the top IPTV

region in the world, the gap between Europe and the Asia Pacific region in terms of IPTV households is expected to narrow near the end of the decade after regulatory issues are taken care of in Korea and China in the near term. Explosive growth, however, is not necessarily expected in China due to a fundamental problem - cost. IPTV is expensive relative to regular pay-TV, placing it out of reach of the majority of China's massive television market.

The North American market is expected to grow modestly through the end of the decade, due to high existing penetration of the pay-TV market by cable and satellite incumbents, aggressive retention response from those incumbents, and delays in actual mass deployment of IPTV by tier one telcos.

IMS Research is also taking a conservative assessment of the impact of Internet video/TV. Due to the difference in usability and limitation to only those on the broadband side of the digital divide, we perceive it as eventually settling into the digital TV landscape as a complement to, not replacement of, traditional operator- and broadcaster-delivered TV.

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