

IMPACT OF DIGITAL SET TOP BOXES ON THE CABLE TV INDUSTRY

User-friendly set top terminals help to increase customer satisfaction with the cable provider. The most wanted consumer features are easy-to-understand on-screen displays, and the capability to access services such as an interactive viewing guide and near video-on-demand. Remote volume control provides increments and decrements. Volume can be set with the TV off.

Set top boxes provide control over signals coming to the home from the cable headend. Some TVs are cable ready and do not require a set top box. Set top boxes provide digital capabilities that extend the capabilities of the TV. Growth of set top box markets will be achieved as a result of a steady migration path with conversion from analog units used currently to more expensive digital terminals. Growth will be stimulated by the need for set top boxes in homes that wish to have communications capability, particularly Internet connectivity. Cable modems provide digital connectivity from the cable system to the PC. Set top boxes provide digital connectivity to the Internet for the TV.

28% of cable homes now have two set tops or more. That number will grow as cable functionality takes on a larger importance in the home, providing telecommunications, home banking, and security along with entertainment. In addition, satellite systems do not provide access to local news channels in many cases, so some users will retain traditional basic cable TV services while migrating to 500 channel satellite services.

Network providers are positioning with high-bandwidth interactivity for the TVs and home computers. Units support a wide variety of applications which equate to new revenue streams in this high-growth environment. Table 1 illustrates types of set top device applications.

TABLE 1
SELECTED TYPES OF SET TOP CONVERTER APPLICATIONS

RETAIL DIGITAL VIDEO NETWORK
DEPARTMENT STORE
AUTO PARTS
INTERNET
DATA CASTING
DISTANCE LEARNING
BUSINESS AND CORPORATE
PROFESSIONAL
UNIVERSITY AND COLLEGE
ELEMENTARY SCHOOL AND HIGH SCHOOL

**ENERGY AND UTILITY CONTROL
COMMUNICATIONS AND TRACKING SYSTEMS
INTERACTIVE MULTIMEDIA NETWORKS
ELECTRONIC GAMES
CONNECTING UTILITY COMPANIES WITH CUSTOMERS
ADVERTISING AND DIRECT MARKETING
HOME SHOPPING-
ON-LINE SERVICE ACCESS
SOFTWARE DISTRIBUTION
WEB SERVER SERVICES
E-MAIL, E-FAX, AND NEWSGROUP SERVICES
CD-ROM ON DEMAND
LOCAL INFORMATION SERVICES**

Source: WinterGreen Research

7

Many current cable TV subscribers are anticipated to subscribe to two or three types of service, each requiring one or multiple set top terminals. For example, subscribers to satellite services may still maintain basic cable for the purpose of getting local TV news channels. Webtop devices that provide Internet access through the TV set may also co-exist within a household that has multiple set tops so that a digital and analog set top terminal are both present.

Just as more affluent families have opted to have two telephone lines or two PCs, so also, more affluent families are expected to opt for two types of set top terminals. The number of households with two PCs provides an indication of how many families may take more than one type of set top terminal.

Telecommunications, cable TV, and satellite market segments are converging. Providers from each segment are seeking to expand into other markets. Set top terminal functions are expanding to include the capability of two way video signal processing to and from a TV set. The terminal may be analog or digital, it may receive signals through a wire, from a wireless source, or from a satellite. Set top terminals have an increasing amount of digital processing power.

Set top converter products are targeted at several discrete market areas: entertainment, consumer, communications, and computers. Units are generally targeted to consumer entertainment and Internet markets, but business data communications markets are expected to evolve soon.

Set top unit support for two-way applications will be critical for future growth of cable TV markets. Offering advanced services such as Internet access, video on demand, home banking and home shopping depend on the ability of units to send signals to the headend as well as receive them from the headend or satellite.

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At the current time only 32% of the wired cable network is two way addressable at the headend. Table 2 illustrates market growth of set-top box markets from \$494 million in 1997 to \$1.7 billion by 2002.

TABLE 2

DIGITAL SET TOP TERMINAL MARKET FORECASTS, 1996-2002							
In Millions of Dollars							
	1996	1997	1998	1999	2000	2001	2002
\$ per Unit	468.0	337.0	310.0	303.8	297.7	291.8	285.9
Units (000)	820.0	1,466.0	2,230.9	3,073.2	4,076.7	4,991.9	5,857.9
% Growth (\$)	45	30	40	35	30	20	15
Shipments MM\$	380.0	494.0	691.6	933.7	1,213.8	1,456.5	1,675.0
Source: WinterGreen Research, Inc.							

Upstream noise from the home to the cable TV company headend represents the biggest difficulty to implementation of digital set top boxes. Digital two way systems require some changes from the current one way systems. Signal ingress and noise originate from within homes. The filters act as barriers to prevent noise from squelching neighboring upstream signals. The filters cost between \$2 to \$7 and are made by several companies. These are what make the digital set top boxes feasible and useful.