

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Video Device Competition)	MB Docket No. 10-91
)	
Implementation of Section 304 of the Telecommunications Act of 1996)	
)	
Commercial Availability of Navigation Devices)	CS Docket No. 97-80
)	
Compatibility Between Cable Systems and Consumer Electronics Equipment)	PP Docket No. 00-67

**Comments of Intel Corporation
To Notice Of Inquiry on AllVid Gateway**

In response to the Commission’s Notice of Inquiry (“NOI”) in the above-referenced docket proceedings,¹ Intel Corporation submits these Comments to support the proposed evolution toward an adapter or “gateway” device that integrates MVPD-delivered video into the home networked environment. Intel is a world leader in computing innovation. The company designs and builds the essential technologies that serve as the foundation for the world’s computing devices. Intel’s advanced CPU and graphics processors power hundreds of millions of computers and consumer electronics products in the United States. Since the mid-1990’s, Intel has worked closely with the members of the motion picture, cable, telecommunications, and satellite television services, consumer electronics, and information technology industries to bring to fruition a true digital networked home and personal environment.

¹ 75 Fed. Reg. 27264 (May 14, 2010).

In a fully-integrated personal network environment, consumers should be able to access, anywhere and anytime, content to which they have lawful rights of access, through digital devices that seamlessly store and share commercial and user-generated content from all sources: television, internet, physical prerecorded media, downloaded media, stored recordings, and live streaming. Companies in the information technology, consumer electronics, and MVPD sectors have taken initial steps to fulfill that vision by developing and introducing new products designed to help consumers store, manage, retrieve and display their home entertainment content.

An “AllVid” gateway could contribute substantially toward realizing that goal. It will fuel competition and innovation by creating a standard network input to other devices that receive, manage, and fully integrate MVPD-delivered content into the home and personal networked audiovisual environment. A simple adapter or gateway interface for MVPD content to enter the home network is eminently sensible, clearly feasible, and highly beneficial to industry and consumers.

I. The AllVid Adapter will Stimulate Innovation in Home Networking and Entertainment.

As Intel noted in its recent comments to the Commission on the Fourth NPRM, MVPD content has been sitting on the sidelines of the home networking revolution for information technology and consumer electronics products.² The Commission’s recent grant of a time-limited waiver to incorporate Internet Protocol in cable-supplied set-top boxes took a giant step toward connecting commercial video services to the home

² *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Docket No. 97-80, PP Docket No. 00-67, Comments of Intel Corporation to Fourth Further Notice of Proposed Rulemaking (June 14, 2010).

network.³ That interim step should now be incorporated into a final regulation requiring all cable-supplied navigation devices to include an IP-based interface. But more needs to be done.

Past progress for other home networked technologies coalesced around a fundamental concept: content arrives in a standard form using standard protocols; products that access the content provide the platform for rapid innovation in display, storage, and networking. Such services enter the home through a common, simplified “gateway,” such as an RJ-11 jack or a DOCSIS modem. New business models and services can be delivered through these entry points. And innovative products from many suppliers can be purchased to make those services available, and more useful, according to the consumer’s preference and convenience.

The AllVid adapter can serve these same goals. Content supplied by the MVPDs would enter the consumer’s home network via the AllVid adapter, and be output using the Digital Living Network Alliance (“DLNA”) guidelines, in standard format such as MPEG-2 or H.264. Devices developed by the MVPDs and their competitors can access the video content from the AllVid adapter, and distribute it across the home network for viewing or recording throughout the home. For example, applications built on Intel’s advanced system-on-a-chip multimedia processors can provide consumers with a powerful interface platform to access all their audiovisual content, including content delivered by an MVPD, content stored on DVRs and media servers, and web pages and streaming media content from the internet. These highly functional chips can be

³ *In the Matter of Intel Corporation, Motorola, Inc., TiVo, Inc. Requests for Waiver of Section 76.640(b)(4)(ii) of the Commission’s Rules, CSR-8229-Z, CSR-8251-Z, CSR-8252-Z, Memorandum Opinion and Order (rel. June 18, 2010).*

integrated in several different types of audiovisual “boxes,” such as cable or satellite service set-top boxes from MVPDs or their competitors, DVRs, media center PCs, BD Live Blu-ray players, digital televisions, and products yet to be conceived.

What is key to the success of these types of products, from Intel and many other competitors, is that *the AllVid adapter must be a gateway, and not a gatekeeper*. The AllVid adapter should make MVPD content available to the network using voluntary inter-industry standards, without discrimination or restriction. It should make no fundamental difference to these devices or to the network that the source of this particular content was an MVPD system.

II. The AllVid Adapter Should Provide Basic Functionality Necessary to Integrate MVPD Content and Services into the Home Network.

Essential to the “gateway, not gatekeeper” concept is that every adapter should be required to provide certain minimum functionality, and to implement common standards necessary to promote interoperability.

By defining the AllVid adapter as an evolution forward from the CableCARD, the Commission implicitly suggests that the AllVid adapter must perform certain minimum conditional access and security functions. By also defining the adapter as a gateway for MVPD-delivered content to enter the home network, the Commission further necessarily suggests that adapters must tune video content, and make that content available interoperably to other devices on the network. Intel describes below eight minimum functions that should be enabled by the AllVid adapter to achieve these goals.

1. Conditional Access. The AllVid adapter must incorporate conditional access elements. These elements should assure MVPDs and their program suppliers that subscribers will receive the content they pay for. These elements need not

be standardized. The MVPD should be free to select the security elements best suited to its systems and processes, so as to prevent theft of service.

2. Security against Harm to the MVPD network. The adapter also should include technical elements necessary to prevent harm to the MVPD's network. As stated above, the MVPD should be free to select the security elements best suited to its systems and processes. Those elements should govern communications from the adapter back to the MVPD. The MVPD should not address communications between the adapter and any devices on the home network; that should be done through implementation of industry standards.

3. Tuning. Tuning functions should be included in the AllVid adapter. It is impractical for a home network to carry a high bandwidth MVPD RF signal to be tuned by devices downstream from the adapter on the home network.

4. Video Codecs. The AllVid Adapter should output video content according to common video standards. As Intel noted in its Fourth FNPRM Comments, MPEG-2 and H.264 should be sufficient as base codecs to be supported by the adapter. Other codecs could be supported at the option of the MVPD. Should additional codecs gain strong support in the market (for example, 3D TV formats), the Commission can adapt these requirements accordingly.

5. Internet Protocol. For the same reasons that Intel has articulated in its Petition for Waiver and its Comments and June 28 Reply Comments to the Fourth FNPRM, the Commission should require use of Internet Protocol as the communications protocol for the AllVid adapter.

6. Networking Protocols. Standard networking protocols should be specified so that consumers can be assured that the devices they purchase at retail can readily connect directly to the AllVid adapter. The most complete suite of networking protocols for audiovisual content has been developed by the DLNA. DLNA's strengths derive from its reliance on existing standards and proven technologies. It was developed by an inter-industry process including companies from the information technology, consumer electronics, motion picture, and cable and satellite industries. DLNA has been adopted by a large number of companies, and is being integrated into thousands of products and services offered to consumers, including DVRs, audiovisual systems, personal computers, and digital media adapters. Intel further understands that major cable operators are working to incorporate DLNA interoperability into their services.

Therefore, the Commission should require implementation in the AllVid adapter of the DLNA guidelines, including Universal Plug and Play Audio Visual ("UPnP AV ") voluntary standards. UPnP AV resolves many elements fundamental to networking, including device addressing, quality of service, and discovery of devices connected to the network. DLNA incorporates UPnP AV plus other voluntary standards addressing functions necessary to networking and connectivity; device and service discovery and control; media format and transport; media management distribution and control; content protection; and manageability.⁴ Specifying use of DLNA including UPnP AV will assure that consumers seamlessly can integrate their set-top boxes into their home networks.

⁴ See http://www.dlna.org/industry/why_dlna/key_components/.

7. Content Protection. Content delivered by an MVPD will include various types of programming that under the Commission's Encoding Rules⁵ may, and must not, be transmitted within the home in protected form. Intel believes that DTCP-IP is best suited to meet the need for content protection on the home network. DTCP-IP enables content suppliers to encode the content they deliver consistent with the Commission's Encoding Rules. Terrestrial broadcast channels, and other programming not subject to copy controls, will be unaffected by DTCP-IP. For content that is marked for protection, such as programming delivered over premium and subscription-only channels, DTCP-IP will assure that content will be available only to those devices capable of protecting the content (within those devices, and in any devices downstream) in accordance with the copy control information. DTCP-IP is simple, inexpensive to license and implement, and widely deployed in products already on the market. Moreover, because DTCP interoperates with other commonly-used content protection systems, it will provide manufacturers, consumers, and content owners with a high degree of flexibility in how to configure their products and home entertainment centers.

8. Bidirectional Communications. For the AllVid adapter to enable competition among devices connected to the home network, the AllVid adapter should be the only box any consumer needs to lease from an MVPD. No consumer should be required to obtain a "full-featured" set-top box from an MVPD so as to be able to obtain video services purchased by the subscriber. Therefore, the AllVid adapter must be able to communicate commands from the consumer's choice of products and interfaces upstream to the MVPD. The commands to be communicated upstream from the AllVid adapter

⁵ See 47 C.F.R. § 76.1904.

should include *all* commands pertinent to the set of services that the subscriber is entitled to receive or invited to purchase. Basic services, such as switching channels, must be enabled through the AllVid adapter, including requests upstream for channels available only by switched digital video. Commands that enable additional services such as pay-per-view, video-on-demand, rental, or purchase, also should be available to and from the network through the AllVid adapter.

Conclusion

An AllVid adapter that uses common protocols and standards can provide a platform for robust innovation in video and home networking products. Intel looks forward to reviewing and responding to comments submitted in this proceeding, and urges the Commission to proceed forward with a Notice of Proposed Rulemaking.

Respectfully submitted,

/s/

Jeffrey T. Lawrence
Director Global Content Policy
Intel Corporation
2111 NE 25th Avenue, JF2-55
Hillsboro, OR 97124-5961
jeffrey.lawrence@intel.com

Date: July 13, 2010