

# Agenda

## ◆ Introduction

- What is HAVi?
- Advantages
- Why does the world need HAVi?

## ◆ Technology

- Requirements
- System Model
  - Control Model
  - Device Classification
    - FAV
    - IAV
    - BAV
    - LAV
  - HAVi Compliance

- Software Architecture
- User Interface
  - Level 1
  - Level 2
- Home Network Configuration
- Interoperability
  - Level 1
  - Level 2
- IEEE 1394(FireWire)

## ◆ Xilinx Value

## ◆ Summary

# What is HAVi?

- ◆ A standard that will allow all manner of digital consumer electronics and home appliances to communicate with each other
- ◆ HAVi is a digital Audio Video networking initiative that provides a home networking software specification
  - It is for seamless interoperability among home entertainment products
- ◆ It has been designed to meet the particular demands of digital audio and video

# What is HAVi?

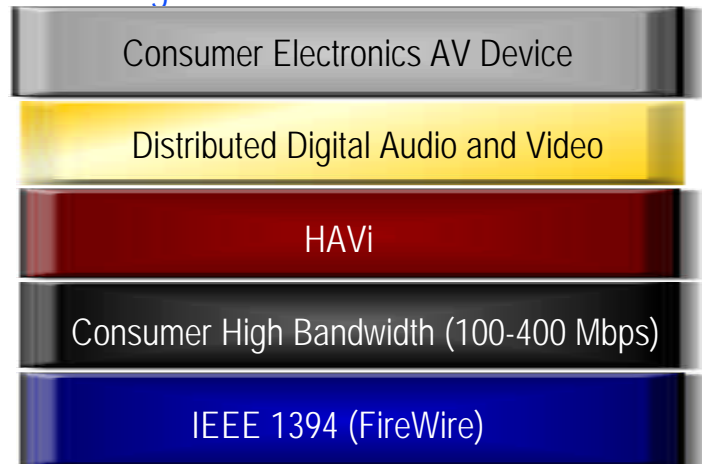
- ◆ It defines an operating-system-neutral middleware that manages:
  - Multi-directional AV streams
  - Event schedule
  - Registries
- ◆ HAVi software takes advantage of the powerful resources of chips built into modern audio and video appliances
  - It Provides the management function of a dedicated audio-video networking system
- ◆ IEEE 1394 (i.LINK® or FireWire®) has been chosen as the interconnection medium

# What is HAVi?

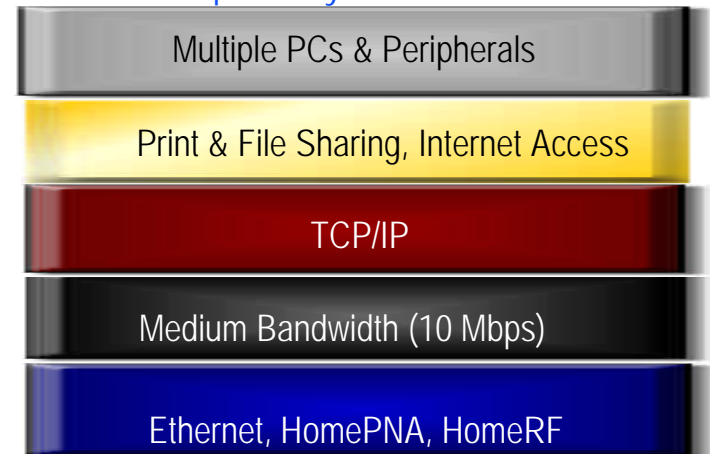
- ◆ IEEE 1394 network is capable of handling both commands and multiple digital audio/video streams
- ◆ IEEE 1394 is a standard which enjoys broad support from both the CE and IT industries
- ◆ IEEE 1394 currently provides a bandwidth of up to 400 Mb/s and is capable of Isochronous communication
  - Makes it suitable to simultaneously handle multiple real-time digital audio/video streams
- ◆ Longer transmission distances and faster data rate under the IEEE 1394 standard are near to completion

# Different Home Networks

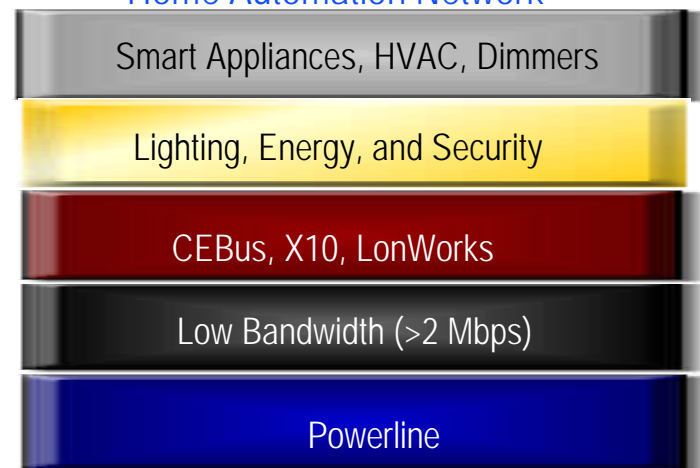
## Digital Entertainment Network



## Computer System Network



## Home Automation Network



Xilinx General Products Group

[www.xilinx.com](http://www.xilinx.com)



# Driving Forces For HAVi

- ◆ Digital Broadcasting
- ◆ The Internet
- ◆ Digitalization Of Modern Homes
- ◆ Entertainment & Video Appliances
- ◆ Digital Home Networking
- ◆ High Bandwidth Requirements For Transmission of Audio and Video Signals



# Who Are The Main Players?

**SONY**

**PHILIPS**

**HITACHI**

**SHARP**

**Panasonic®**

**THOMSON** MULTI MEDIA

**GRUNDIG**

**TOSHIBA**

# Advantages Of A HAVi Enabled Device

- ◆ Automatically detection of devices on the network
- ◆ Instant coordination of the functions of various devices
  - Each added appliance to the HAVi network is automatically registered so that other devices know what it is capable of
- ◆ Installation of applications and user interface software on each device
- ◆ Ensuring interoperability among devices regardless of the manufacturer



# Why Does The World Need HAVi?

- ◆ Interpretability
  - Functions on a device within the HAVi networking system may be controlled from another device within the system
- ◆ Brand independence
  - Entertainment products from different manufacturers will communicate with each other when connected into a HAVi network
  - VCRs, DVD players, Set Top Boxes, and ...can be shown up on the TV and be controlled by one remote commander

# Why Does The World Need HAVi?

- ◆ Hot Plug and Play
  - HAVi compliant devices automatically announce their presence and capabilities to every other device on the HAVi network
    - Simple installation and set up
    - No more complicated and difficult installation instructions
    - no configuration of network addresses or device drivers
- ◆ Upgradability
  - Most HAVi compliant devices will come with their own dynamic Device Control Modules
    - Updating functionality can be done by downloading/uploading new capabilities via the Internet

# A HAVi Home!

