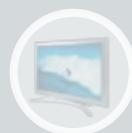# Tru2way 8654

## SMP8654 \<tru2way\>™, DOCSIS 3.0
## Cable Set-top Box and Gateway Reference Design

The Tru2way 8654 reference design enables the rapid development of a tru2way™ DOCSIS 3.0 based cable set-top box or gateway (server for tru2way™ clients) for cable-TV and IP-Cable systems where downloadable conditional access is used. In addition to enabling a virtually unlimited channel lineup, it supports Voice, Data, Video and Access Control, and can tune to and record up to three TV channels simultaneously.

Based on our SMP8654 Secure Media Processor, the Tru2way 8654 can decode one HD or three SD programs simultaneously. The programs may be viewed simultaneously using picture-in-picture.

To reduce deployment costs, instead of using a tru2way™ cable set-top box for each room, one Tru2way 8654 gateway (server) and one or more tunerless tru2way™ clients can be used.  Each tru2way™ client can control one tuner in the Tru2way 8654 gateway or access recorded content. The selected program is sent to the tru2way™ client over the home network.
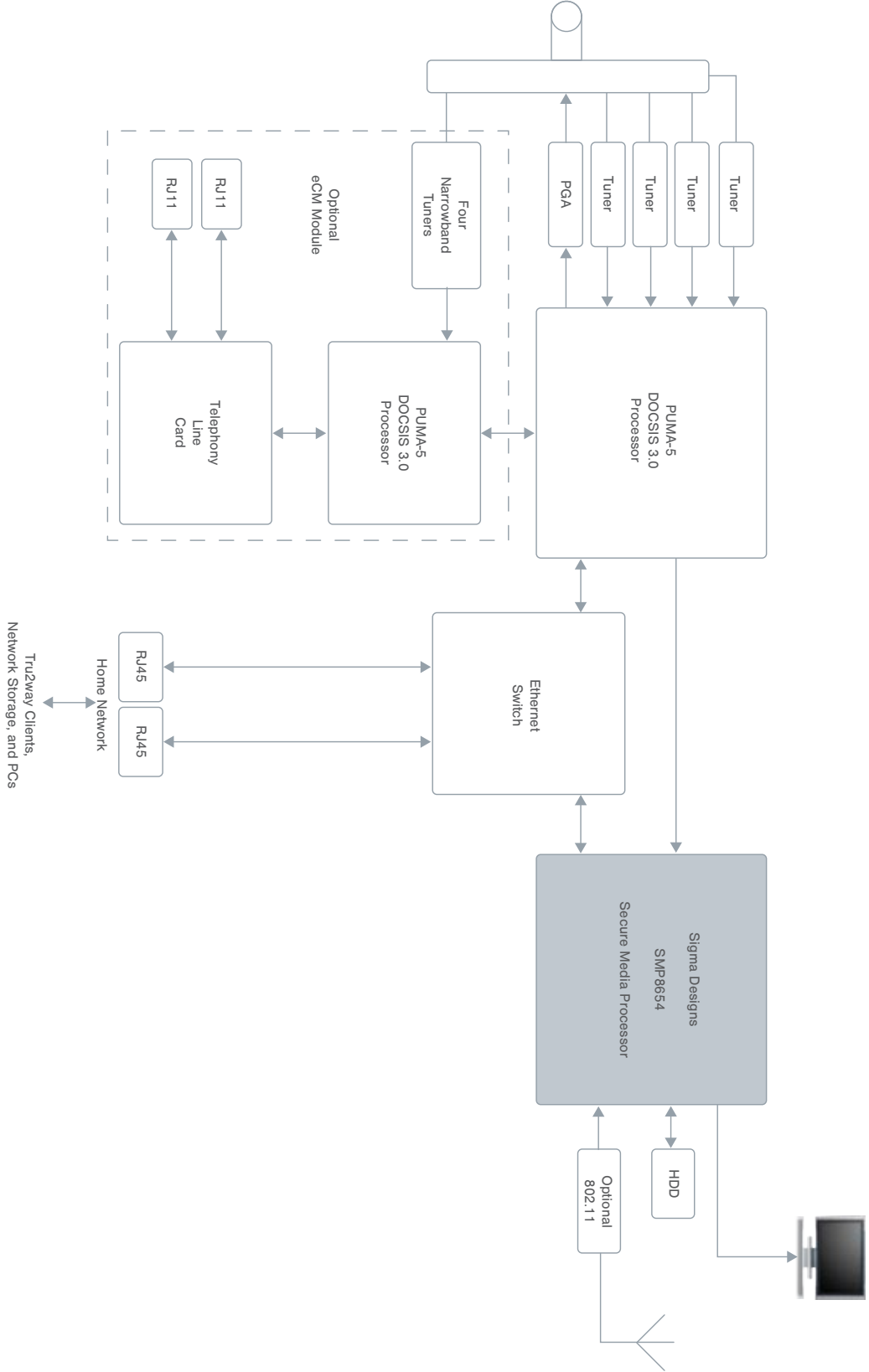
- Enables rapid development of a tru2way™ DOCSIS 3.0 cable set-top box or gateway (server for tru2way™ clients)

- tru2way™, DSG, DVB-C compatible

- Triple play (video, data and voice)

- Tune to and record up to three TV channels

- 1 to 8 bonded channels individually configured to DOCSIS or MPEG-TS video

- DOCSIS 1.X, 2.0 and 3.0 compliant

- 320/120 Mbps data rate in 8x Downstream, 4x Upstream configuration

- Multi-standard (MPEG-2, H.264, VC-1) video decoding

- SATA drive interface for PVR

- VoIP capable via optional telephony line card

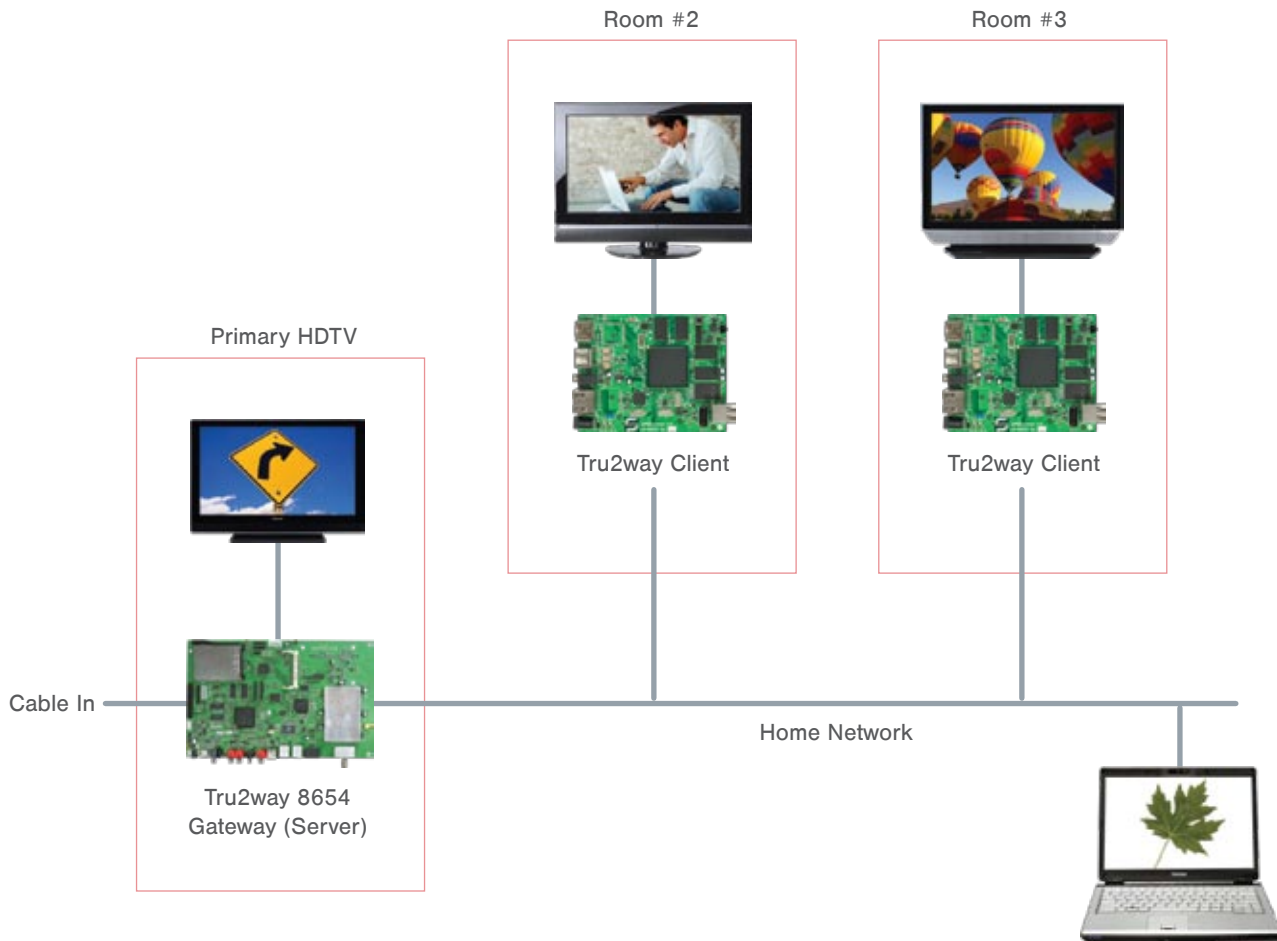- Ethernet router capable

POWERING THE DIGITAL MEDIA GENERATION

# Tru2way 8654

## Block Diagram



Optional eCM Module

RJ11

RJ11

Four Narrowband Tuners

PGA

Tuner

Tuner

Tuner

Tuner

Telephony Line Card

PUMA-5 DOCSIS 3.0 Processor

PUMA-5 DOCSIS 3.0 Processor

Tru2way Clients, Network Storage, and PCs

Home Network

RJ45

RJ45

Ethernet Switch

Sigma Designs SMP8654

Secure Media Processor

Optional 802.11

HDD

Room #2

Room #3

Primary HDTV

Tru2way Client

Tru2way Client

Cable In

Home Network

Tru2way 8654
Gateway (Server)

Additional features such as DLNA, Z-Wave® RF remote control, and streaming of on-line movies, TV shows and videos may also be easily incorporated. Adding Z-Wave® capability also integrates support for Z-Wave® enabled home automation, home security monitoring and home energy management products. This enables cable service providers to offer additional premium services, such as home security monitoring, for the home.

# TRU2WAY 8654 FEATURES AND SPECIFICATIONS

## VIDEO OUTPUTS
- NTSC/PAL composite and S-video
- Analog YPbPr video
- HDMI v1.3 with audio
    - Supports 1080p24 and 1080p60
- Macrovision copy protection on 480i, 576i, 480p and 576p analog outputs

## AUDIO OUTPUTS
- 2.0-ch analog audio
- Optical and coaxial SPDIF digital audio

## QAM & DOCSIS PROCESSOR
- DOCSIS Modulator/Demodulator
- 4 Narrow-Band tuners with QAM and DOCSIS interface
- Broadband communications processor
- Packet processor
- Voice Digital Signal Processor (eMTA support)

## MEMORY
- 64MB NOR flash
- 8MB Serial NOR flash
- 512MB DDR-2 DRAM (DDR-667)
- 64MB DDR-2 DRAM

## OTHER I/O
- RF coax input for cable signal
- Dual USB 2.0 high speed (embedded host)
- Dual 10/100 BaseT Ethernet (RJ45)
- SATA connector
- IR and VFD front panel connector (5-pin header)
- Mini PCI connector (for optional 3rd party 802.11 or UWB card)

- Optional daughter card can be added with four narrowband tuners and additional PUMA-5 IC for 4 additional downstream channels
    - Allows 320/120 Mbps data rate in 8x Downstream, 4x Upstream configuration

## DELIVERABLES INCLUDE
- DOCSIS 8654 board
- SDK (API and documentation, includes applicable source code)
- Board schematics
- Bill of materials
- Gerber files
- SMP8654 datasheet
- Case and power supply
- Remote control
- Requires x86 PC with Redhat Linux
- Requires tru2way™ (OCAP) Software Stack from a tru2way™ software partner (as available, requires a separate license agreement with software partner)
    - OCAP 1.0
    - DSG
    - Common Download
    - DVR
    - EAS messages
    - Closed captioning
    - System startup & shutdown
    - Caching of download applications
    - Copy control
    - Security and key management

## tru2way™ SOFTWARE PARTNERS
- VividLogic
- TVStorm