



## NXP PCI Express hybrid (DVB-T/analog) PC TV Mini card reference design PCV540

# Watch and record TV on notebooks and other compact PCs

The highly integrated PCV540 reference design brings hybrid TV reception and DVR features to power-conscious notebook PCs and specialty form factors such as compact 'all-in-one' PCs. On a small PCIe Mini card, the PCV540 handles complete TV functionality including worldwide analog TV tuning, DVB-T digital TV tuning and demodulation, analog TV video/stereo decoding, and multi-format digital A/V encoding — making it an ideal choice for products in Europe and other DVB-T markets.

### Key features

- Hybrid TV reception: worldwide analog and DVB-T digital standards
- PCI Express Mini card form factor
- Supports TV viewing and recording
- Captures baseband A/V from CE devices
- High-performance, hybrid silicon tuner NXP TDA18271

### Features NXP SAA7163FE IC

- Single-channel analog TV video and sound decoding
- Digital transport stream capture
- Multi-format digital A/V encoding for DVR and time-shift features (with host PC)
- Vibrant picture quality through advanced 3D comb filters and 3D noise reduction

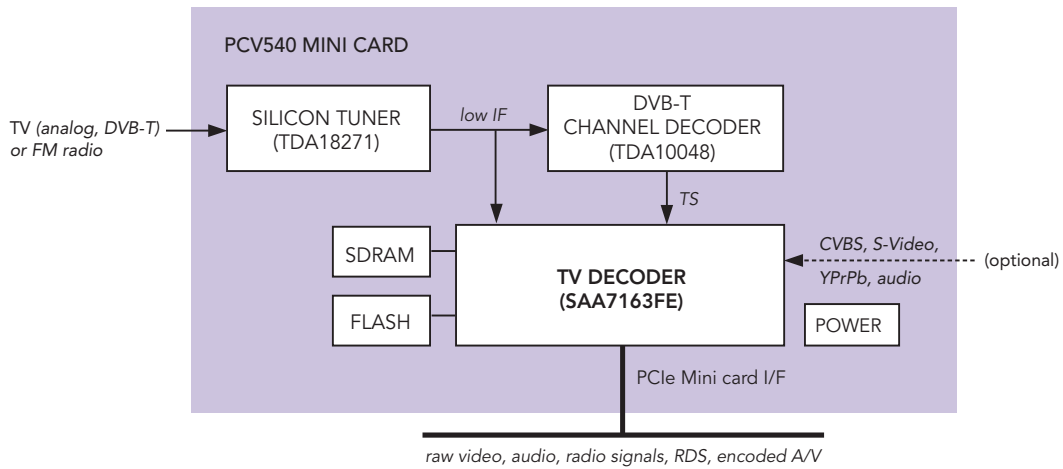
A complete, low-BOM reference design, the PCV540 processes hybrid TV streams using only a few key components: a low-noise multi-standard tuner, a low-power DVB-T channel decoder, and the highly integrated SAA7163FE PC TV IC. In addition to decoding broadcast TV video and stereo, the SAA7163FE encodes analog A/V for recording features in hardware. By off-loading the host CPU of this cycle-consuming task, it enables PC manufacturers to utilize lower-cost CPUs without compromising performance or picture quality.

The SAA7163FE ensures high-quality reception under the most demanding conditions through advanced 3D comb

filtering, 3D noise reduction and dynamic echo cancellation. It also handles high-quality scaling, vertical blanking interval extraction, remote control support for TV and recording, multi-layer content protection (Macrovision® detection), and CGMS-A extraction.

PCV540 is supported on popular Windows operating systems and third-party TV/DVR applications. Board setup and control is handled through the Windows WDM driver AVStream Class with BDA Extensions. The reference design includes a PCIe Mini card, all necessary drivers, a user manual, schematics, a BOM, Gerber files, and documentation.





## Specifications

### PCV540 includes

- Reference board
- Drivers
- User manual, schematics, BOM, Gerber files, documentation

### Reference board

- PCIe host bus interface, Mini card full-profile form factor
- Separate RF connectors for digital cable TV, analog TV, and FM radio
- NXP TDA18271 hybrid TV tuner
  - analog: PAL, SECAM, NTSC
  - digital: DVB-T, DVB-C, ATSC and ISDBT
- NXP TDA10048 DVB-T channel decoder
- NXP SAA7163FE PC TV IC
- 32-MB DDR RAM
- 3 switched supply regulators
- 4-MB Flash memory footprint; Flash memory (ST M25P32) optional
- (opt.) 1 external IR receiver/ transmitter

### SAA7163FE PC TV capture/encode IC

- Single channel
- Worldwide analog TV video decoding: NTSC M, NTSC Japan, NTSC 4.43, PAL BGDHIN, PAL M, Combination PAL N, SECAM L/L'
- Worldwide analog TV sound decoding: BTSC, SAP, EIAJ, NICAM, FM A2, FM radio
- A/V encode: MPEG-1/2/4, WMV, DivX, and AAC-LC
- Audio formats MP3, MPEG1L2, Dolby Digital® (2-channel)
- Worldwide VBI text and data services
- 3D comb filter and 2D/3D noise reduction
- Processes CVBS, S-Video and component

### Operating system support

- Microsoft Windows XP
- Windows MCE 2005
- Windows Vista (32- and 64-bit support)

### Certifications

- RoHS compliant
- PCIe 1.1 compliant
- Macrovision Detect specification Revision 1.00

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