MICRONA

ETF 2005 – Home Media Server

Kai Scheffer, Director Media Home
Consumer Products

About Micronas

- Leading supplier of consumer audio and video solutions
- Publicly listed in Zurich SWX and Frankfurt (TecDAX)
- Sales 2004 Q1-Q3 CHF 739M
- 1900 employees
- Operational Headquarter in Germany
- World wide sales offices including Taipei, Japan, Korea, Hong Kong, China, Singapore, Malaysia

MICRONAS

Who are our customers?

Global blue chip customer base

Adco
AEC
Archos
Bang&Olufsen
Beko
BenQ
Bosch
Changhong
Cherry
Conrac
Continental
Daewoo
D. Boss
Delphi
Delta
Denso
Flextronics
Funai
Gradiente
Haier
Harman
Hauppauge
Hi-Sense
Hitachi
Johnson Control
Konka
Kostal
Kyocera
Lear
LG Electr.
Liteon
Loewe
Matsushita/JVC
Metz
Mitsubishi
Mivar
NEC
Nexgen
Orion
Philips
Pioneer
Sagem
Sampo
Samsung
Sanyo
Sharp
Siemens VDO
Skyworth
Solectron
Sony
Tatung
TCL/Thomson/TTE
Toshiba
Tyco
Valeo
Vestel
Xiamen Overseas

Consumer

Automotive

Customers with logo account for 2/3 of sales

Recent History - Audio

- The PC has revolutionized consumer Audio with MP3
  - First it was all about ripping and burning CDs
  - ... then it was portable audio devices (Flash Storage)
  - ... then it was about streaming and connecting to CE
  - ... still the PC is a center piece for storing and managing MP3 files
- The future will be accessing content via a network
- Can we learn from this development for Video?

Video follows Audio

- Despite the fact that Video could not be consumed during jogging we still have a lot of similarities:
  - Audio Cassette – Video Cassette
  - FM Radio – TV Broadcast
  - CD Audio – DVD Video
  - MP3 Audio – MPEG-2/4, DivX, WMV

Where are we now with Video?

- DVD ripping, burning
- Broadcast recording, time shifting
- Broadband Internet, home networks
- Increasing number of CE devices need connectivity via network
- ... and the PC is the center of all this

Watch one Video while
Recording another (PiP)
ATV & DTV Sources
Dual Input Streams
SD/HD Video Sources
Time Shift Recording
to Hard Drive

Micronas Entertainment PC Solutions

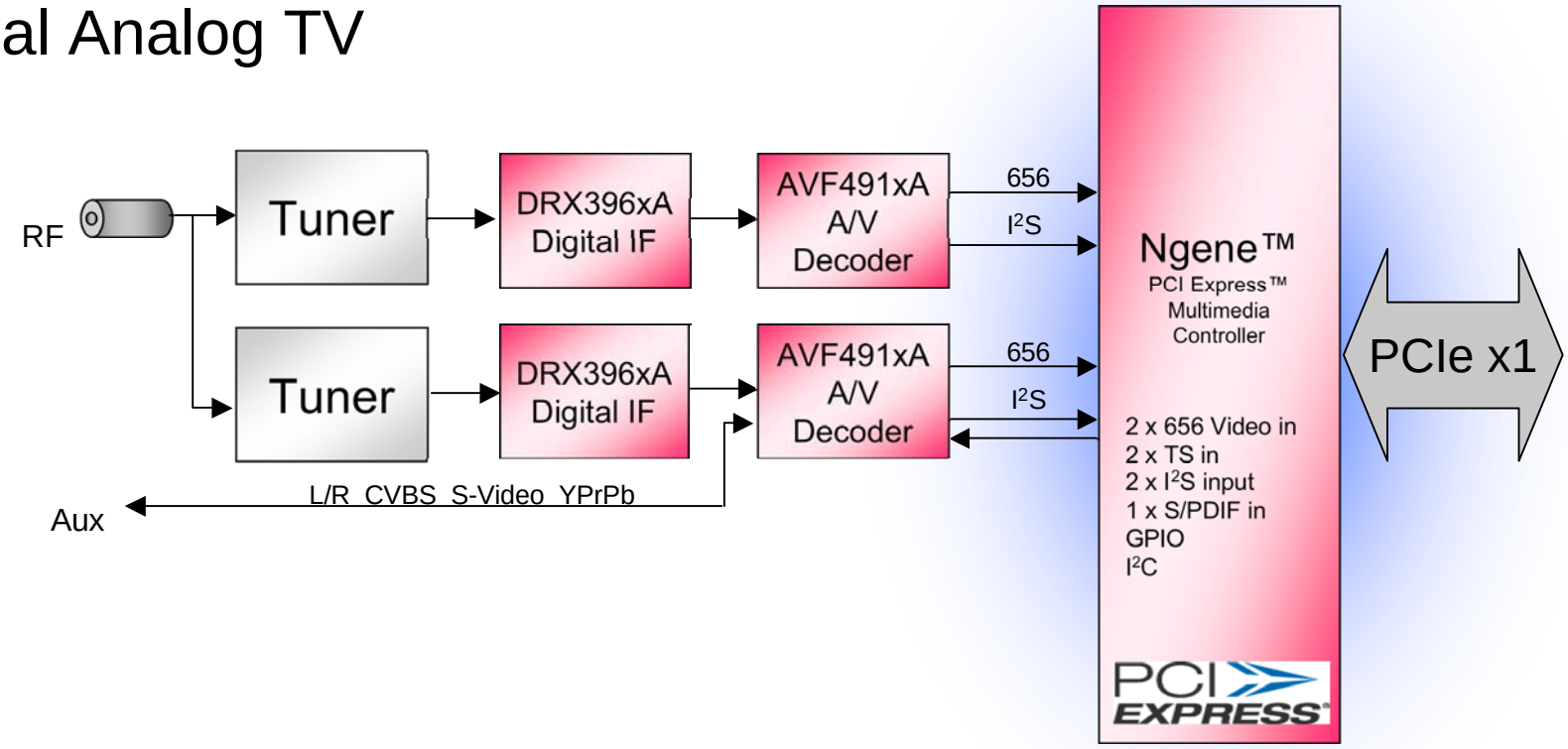
- Micronas targets strong growing EPC Market
- Leverages from existing consumer TV product expertise
- Drive quality products into PC market
- Integrating the consumer TV into the PC world
- PCI Express as the technology of choice
  to interconnect these worlds

Ngene™ PCI Express TV-Tuner Solution

- World's first PCI Express Multimedia Controller
- True dual channel A/V streaming
- Enables simultaneous recording and live caching

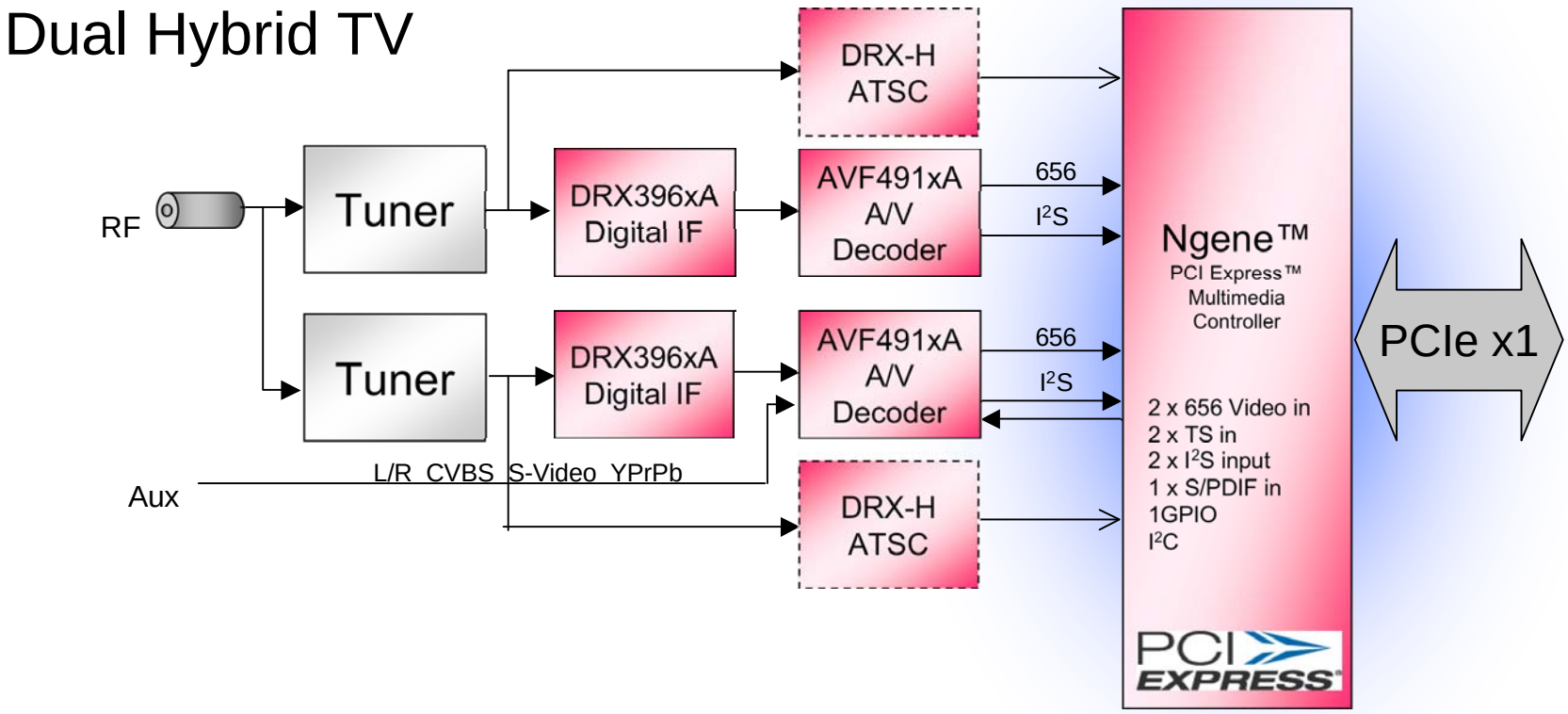
Scalable Solution for TV Tuner with PCI Express™

Dual Analog TV



PCI Express™ Enables Multi Stream Video

Scalable Solution for TV Tuner with PCI Express™



PCI Express™ Enables Multi Stream Video

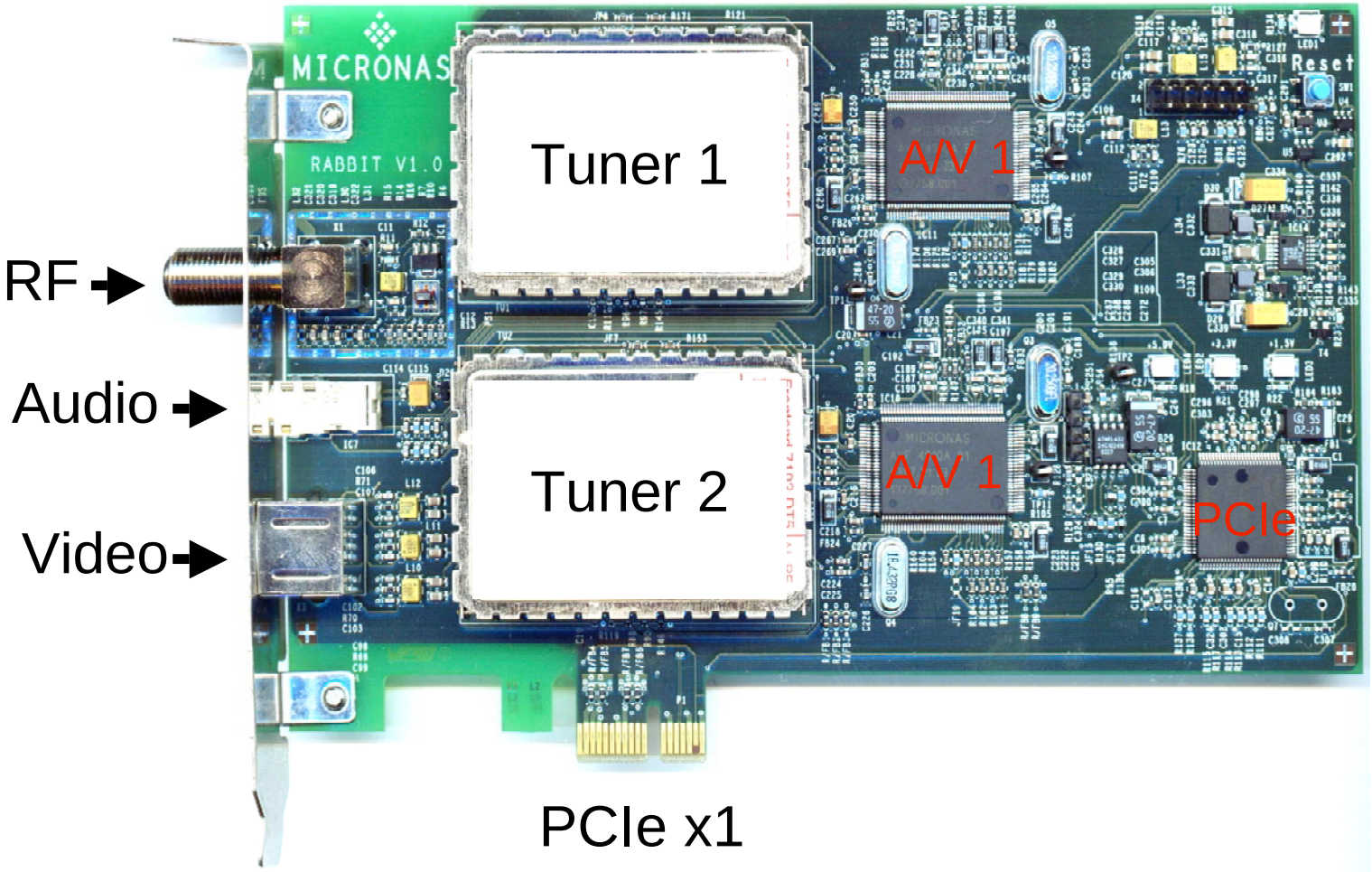
System Integration

- 2 in 1 solution: Integrates 2 PC-TV card functions
- Perfect Audio/Video synchronization
- Digital Stereo Audio decode and capture for all standards
  BTSC, SAP, A2, FM, Nicam
- CVBS, S-Video, Component (480i/525i) Video input support
- Dual Transport Stream for ATSC, DVB
- Line Audio and S/PDIF support

Why we need PCI Express:

- PCIe is much faster than PCI
  - Allows multi stream video
  - Each PCIe slot does have dedicated bandwith not shared with other PCIe slots
  - Does not stall the CPU or System (33MHz PCI clock = 100 CPU clock cycles)
- Less pin count allow for smaller motherboards
- Small form factor PCs are limiting # of slots

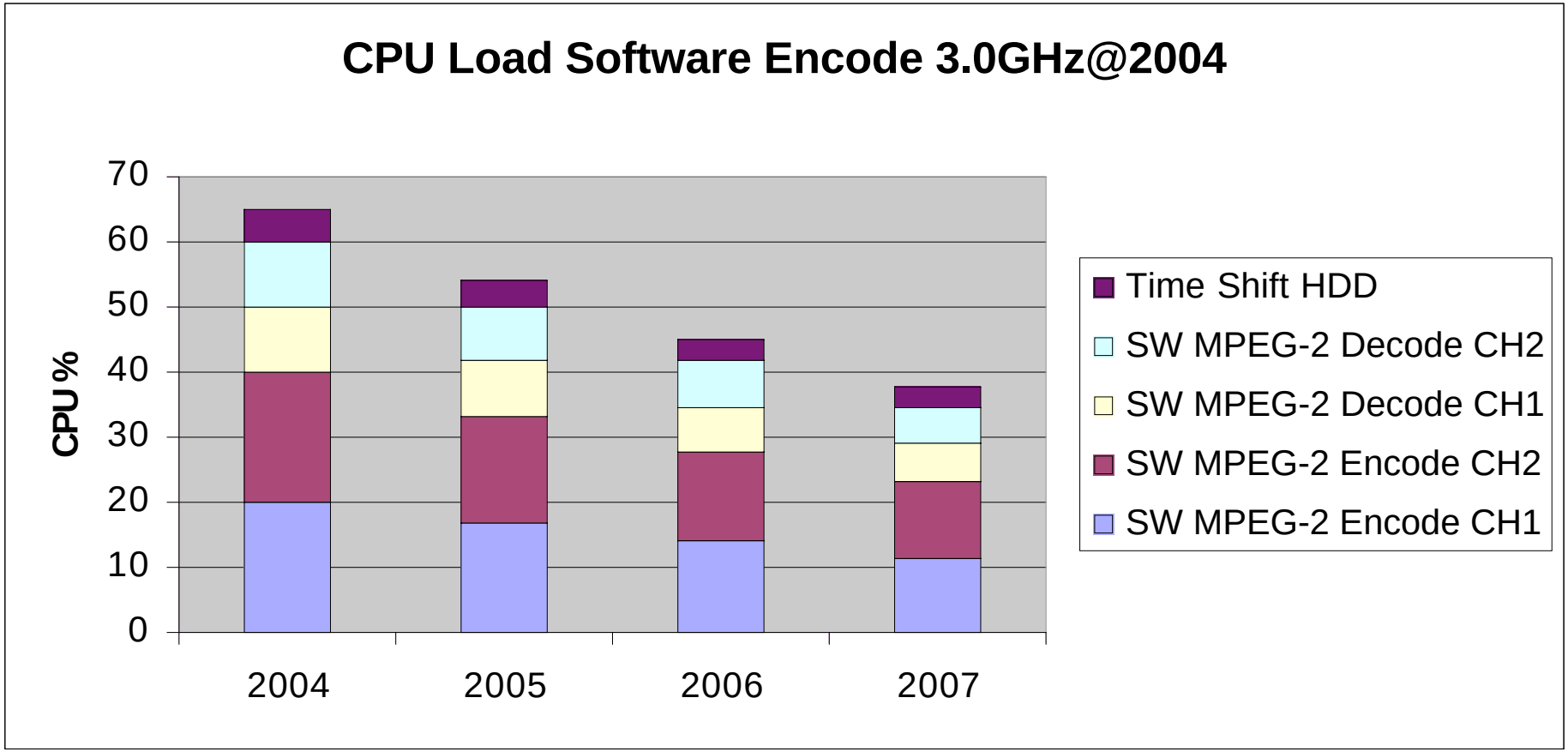
Dual Channel PCI Express TV Tuner Card



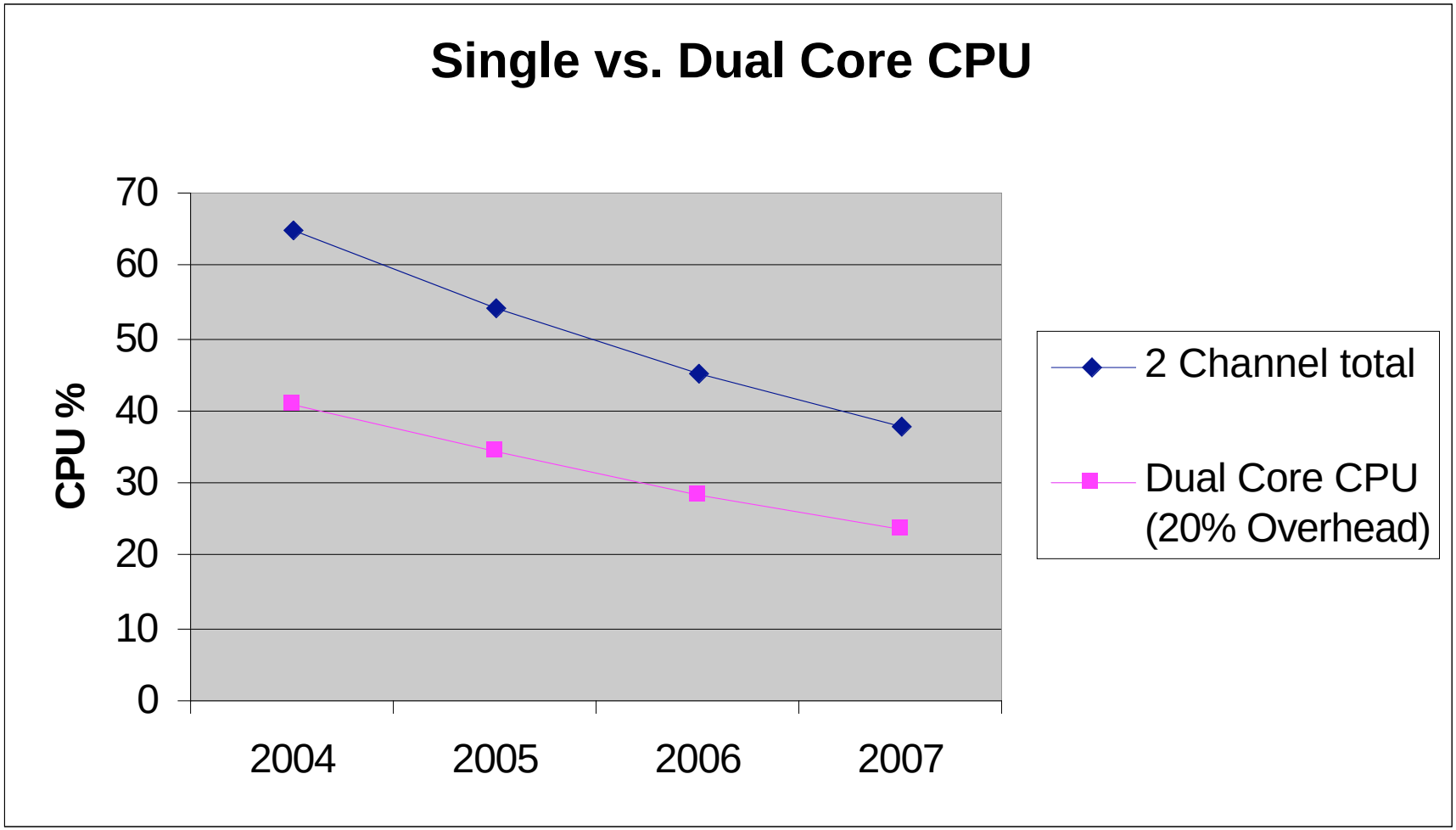
Software Encoding for Analog Content

- PCI Express enables streaming of uncompressed multi channel video
- Configurable software compression specific for each application or needs
- MPEG-2, MPEG-4, DivX, WMV, ...

CPU Load Considerations



Single vs. Dual Core CPU



Micronas - CES 2005

- See live demo at Micronas

  LVCC South Hall 4, Booth 35628

- Contact

  Kai Scheffer, Director Media Home

  kai.scheffer@micronas.com