# “Enabling the Analog to Digital Television Broadcast Transition"

**Corporate Marketing**

**Zoran Corporation**

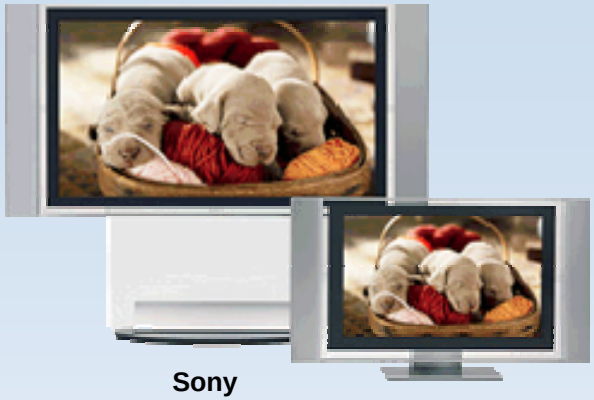
# Zoran

## Global silicon and system solution provider for digital imaging and digital video consumer electronics

Zoran Headquarters Sunnyvale, Ca.

# DTV Products

Syntax – Olevia
37” LCD TV



Sony

HP Pavilion MD6580n 65" 1080p

Magnavox HD LCD TV
42MF130A/37

RCA & Scenium DTV’s including
CRT & DLP RPTV’s

Pioneer PDP 4214HD

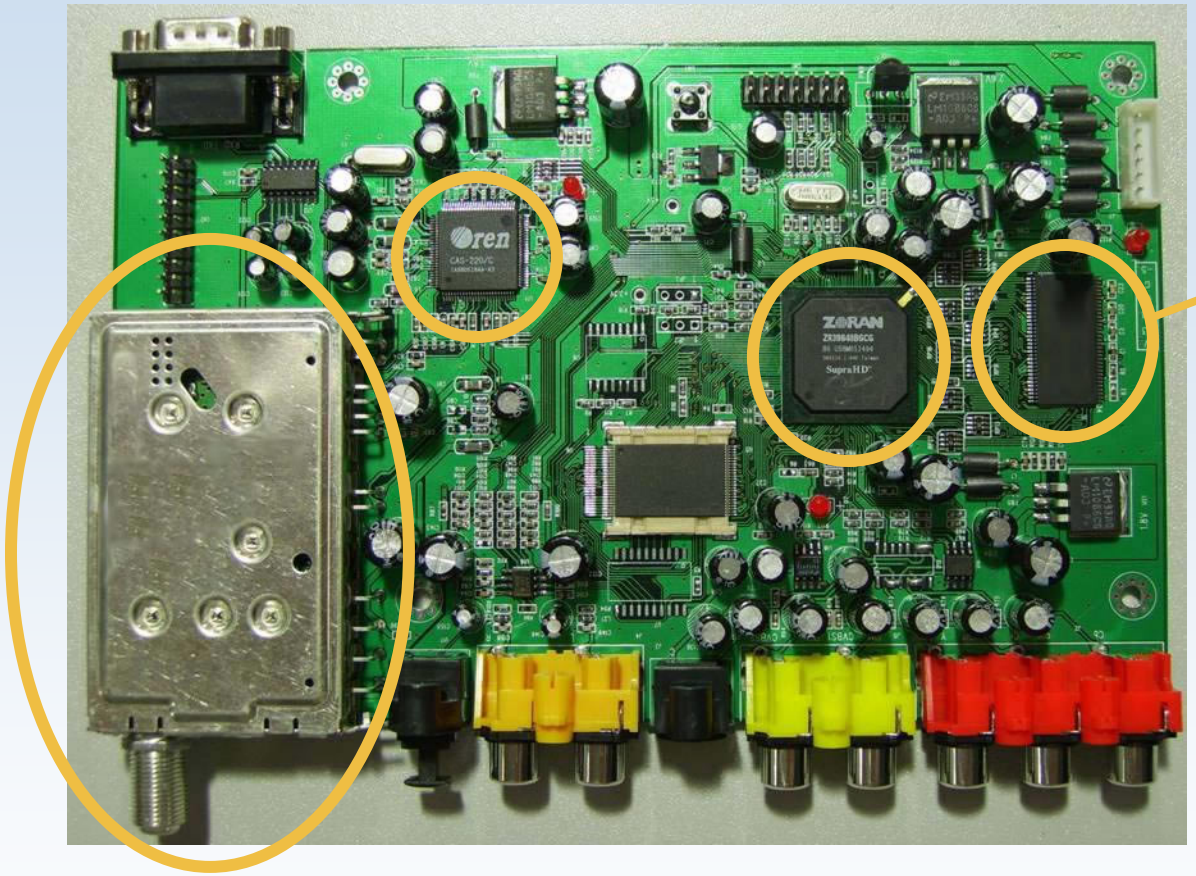
Homecast
HT8000 DVR

JCOM JC4000 and
JC5000 STBs

ChangHong FTA DVB-T STBs

MICO STB220 FTA DVB-T STB

# SupraHD™ 640 Reference Design




**Essential DTV Converter Box Components**

# DTV Converter Box Component Power Usage Estimates

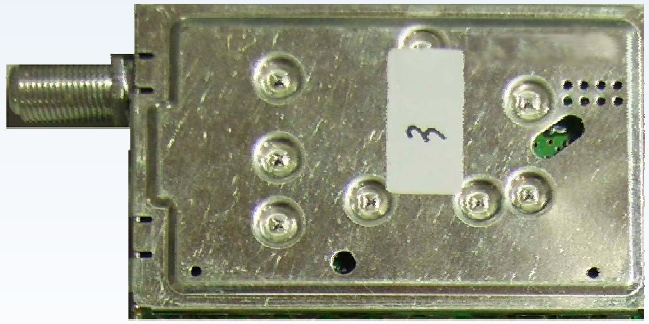
- RF Tuner 0.9 - 1.5 W
- 8VSB Demodulator 0.75 -1.2 W
- Processor+MPEG-2 decoder 3 - 3.5 W
- DRAM memory ~ 1.5 W
- Assorted analog ~ 0.5 W
- Internal Power Supply 5 - 6 W

# DTA Component Survey

- **Microtune MT2131** — **1.58 W**
  - http://www.microtune.com/products/digital_tv_home_entertainment.shtml
- **Xceive XC3028** — **1.2 W**
  - http://www.xceive.com/technology_XC3028.htm
- **ATI NXT 2004/2005** — **0.75 W – 1 W**
  - http://www.ati.com/products/nxt2005/features.html
- **Phillips TDA8960** — **1 W**
  - http://www.semiconductors.philips.com/pip/TDA8960.html
- **Samsung DDR/DDR2 memory** — **1.5 W**
  - http://www.samsung.com/Products/Semiconductor/common/product_list.aspx?family_cd=DDR010104
- **Zarlink ZL10353 COFDM demodulator** — **0.56 W**
  - http://products.zarlink.com/product_profiles/ZL10353.htm

# Silicon Tuners In DTV Solutions

- Shrinking the ATSC DTV platform size but not power



# US Digital-to-Analog Converters and HD pictures

- A US DTA must be capable of 18 digital ATSC stream types

**1920x1080, 60 fps**
**19.2 Mbps compressed**
**200 MBps uncompressed**

**720x480, 60 fps (US)**
**720x576, 50 fps (EU)**
**3 Mbps compressed**
**31 MBps uncompressed**

# US Digital-to-Analog Converters and HD pictures (contd.)

- 5x computation complexity due to 2 step operation

10101010101 → **Decoding** → → **Scaling** →

- Larger data set also requires larger and faster memory chips

# Survey of HD STBs worldwide

- Sony DSTHD500
  - 20W normal , 4W standby
  - http://www.sony.com.au/homecinema/catalog/product.jsp?categoryId=23753
- Panasonic QTR
  - 15W normal, 5W standby, 33W max.
  - http://panasonic.com.au/products/details.cfm?productID=1253&CFID=5441506&CFTOKEN=89308573&jsessionid=ec3054780114324449446 8TR
- Humax HD7000
  - 17W normal, 3W standby
  - http://www.humaxdigital.com/australia/products/hd-7000.asp
- Samsung SIR-T451
  - 20W normal, 2W standby
  - http://www.samsung.com/Products/DigitalSetTopBox/HDTVTuners/SIR_T451XAA.asp?page=Specifications
- LG LST-1500
  - 15W normal
  - http://www.lge.com/prodmodeldetail.do?actType=search&page=1&modelCategoryId=0304&categoryId=0304&parentId=03&modelCodeDisplay=LST-5100P&model=NOTHING

# Summary

- Zoran is committed to developing silicon products that consume low power enabling energy efficient platforms
- Zoran's current SupraHD products offer state of the art DTV converter box technology
- Zoran recommends policy makers and industry groups to unify standards on power consumption (NTIA or CEA or Energy Star) for converter boxes