

Semiconductor & Electronic Solutions

DVB-H Receiver IC Design

DVB-H Receiver IC Design

- Summary of presentation:
 - Sony SES – Who are we?
 - Overview of DVB-H
 - DVB-H Receiver Front-End
 - Illustrate the IC design flow and key issues for a DVB-H Receiver IC

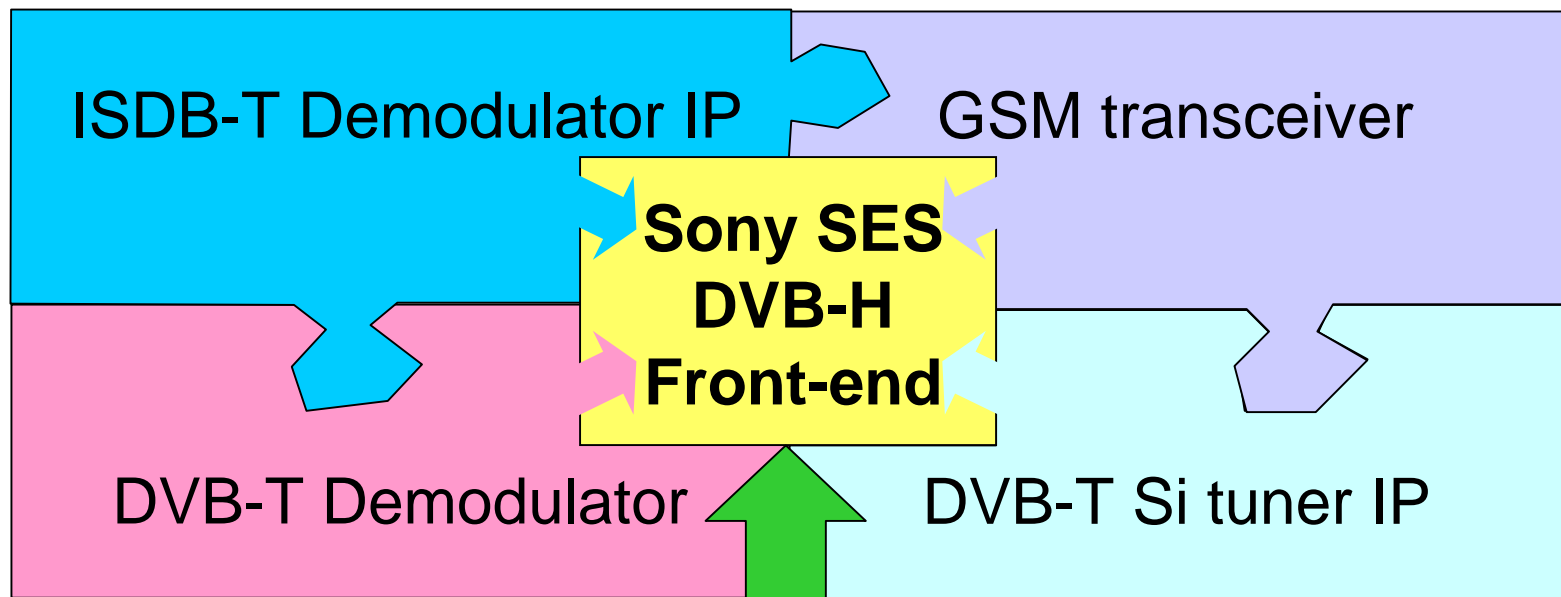
Sony Semiconductor & Electronic Solutions (SES)



- SES is based in UK
- SES is part of Sony Semiconductor Network Company (SSNC)
- Focus areas for IC development:
 - Digital TV
 - Mobile phone handset

SONY

Sony SES Competency

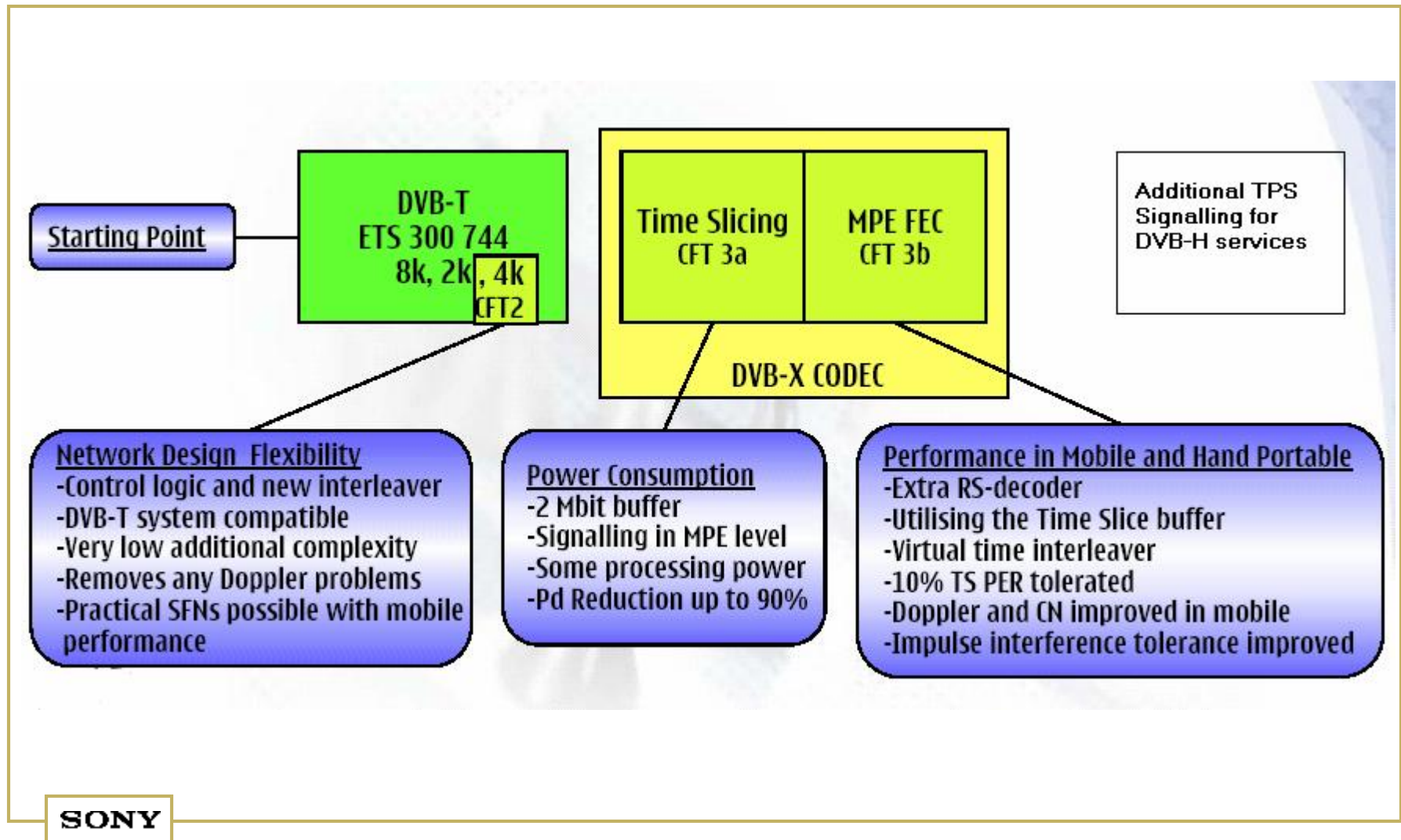


Major contributor to DVB-H specification

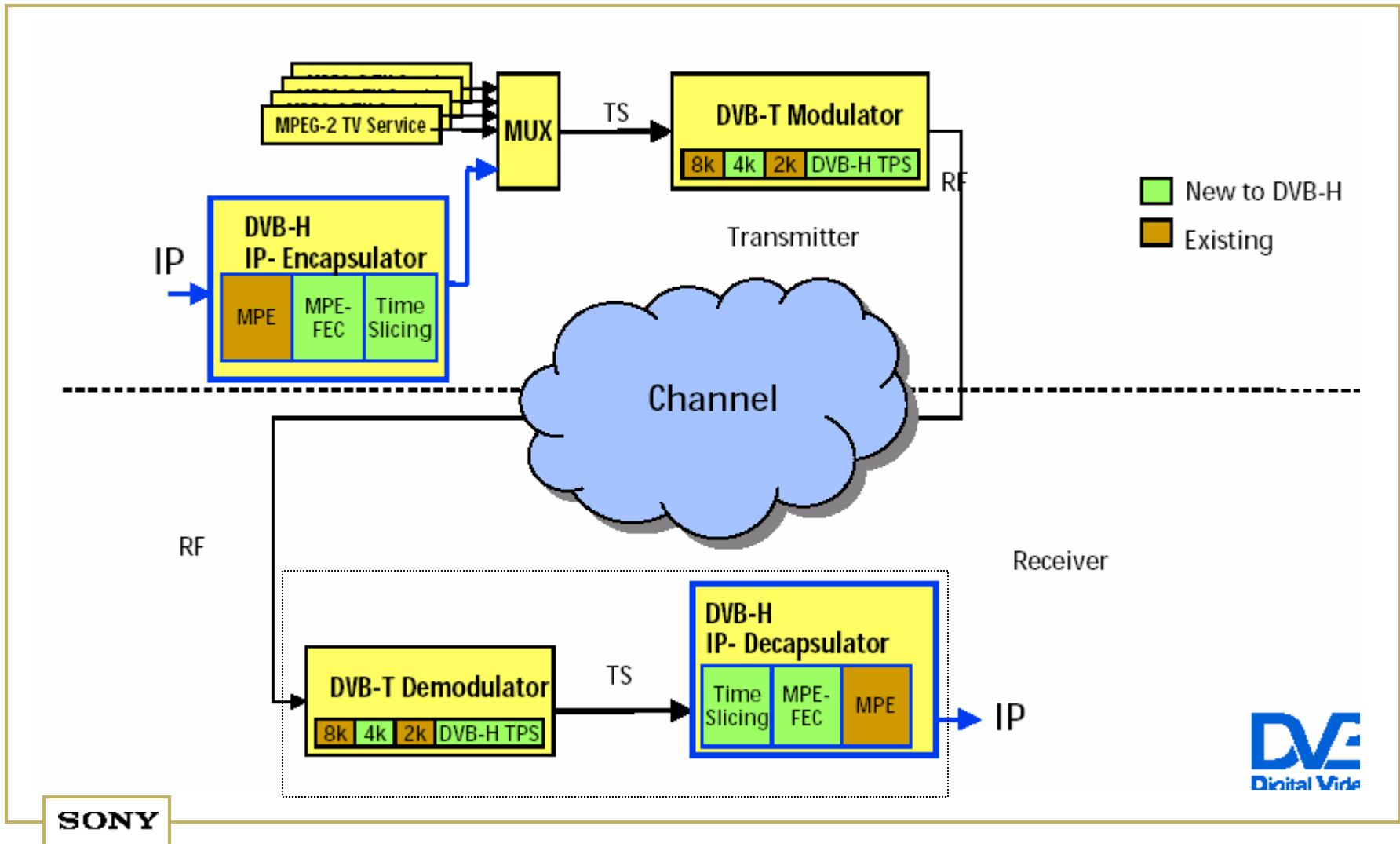
DVB-H Overview

- Based on DVB-T, **backwards compatible**
- New features added to **support Handheld** reception
 - battery saving
 - mobility with high data rates, single antenna reception, SFN networks
 - increased general robustness, improved impulse noise tolerance
 - support for seamless handover
- DVB-H is meant for **IP-based services** via MPE insertion
- DVB-H **can share DVB-T multiplex** with MPEG2 services

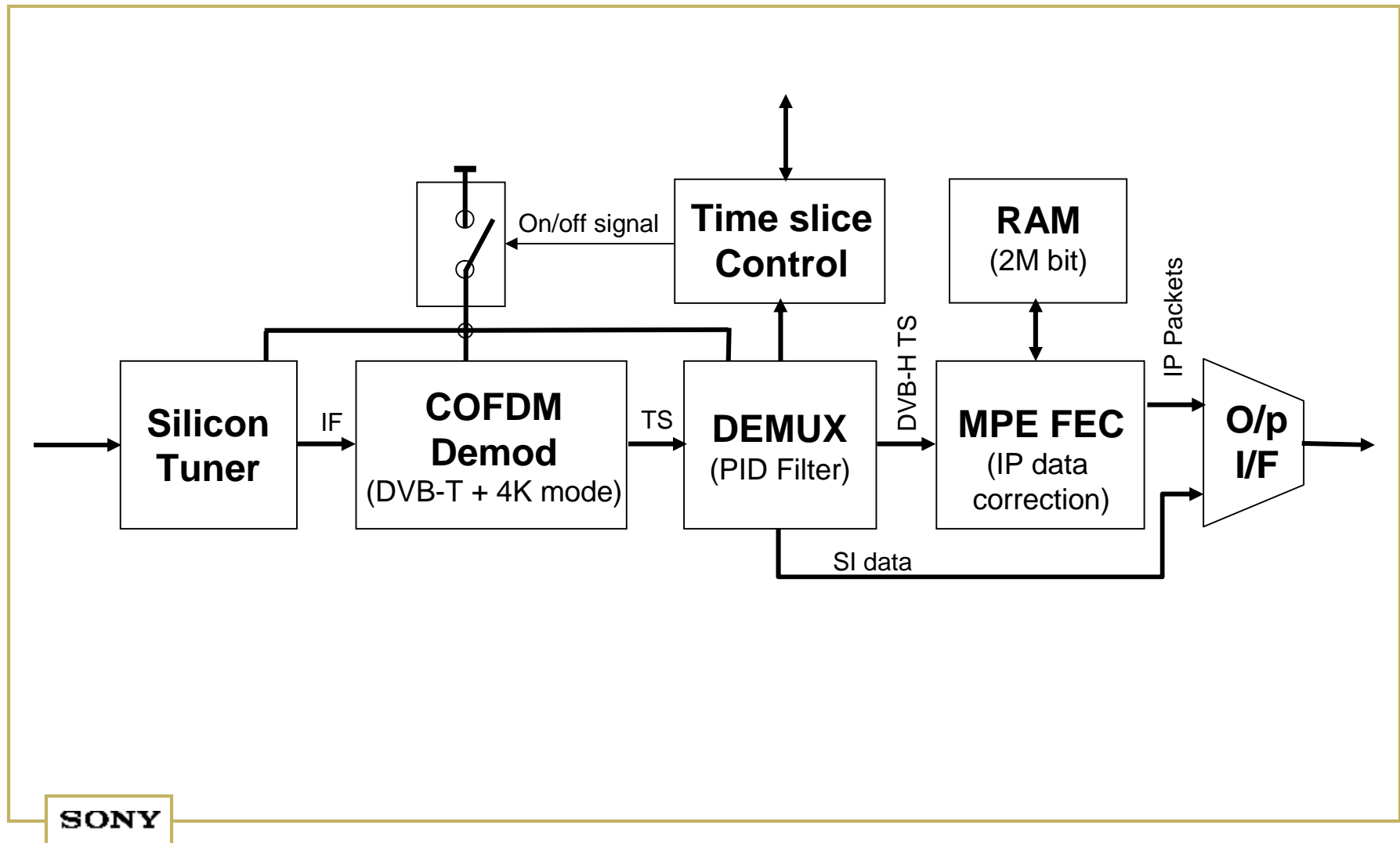
DVB-H Overview



Co-existence with DVB-T



Typical DVB-H Receiver Front-End



Algorithm

Algorithm



H/W Design



Software



Prototype



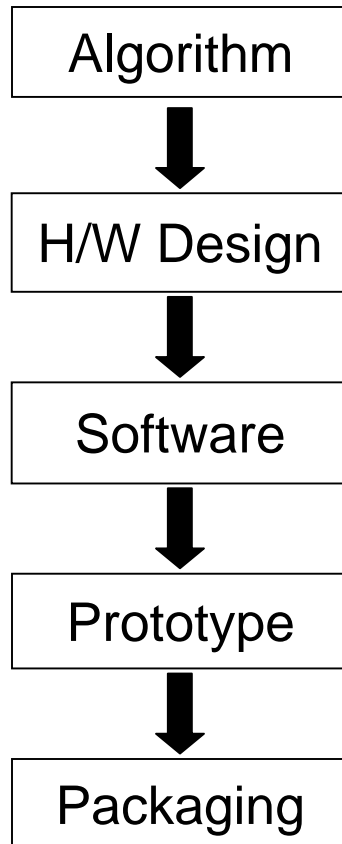
Packaging



- Build on existing DVB-T IC capabilities
 - CXD1973Q è CXD1976R
- Build on ISDB-T – mobile OFDM
- Additional Capabilities
 - Mobile & portable reception
 - 4K, extended interleaving, new TPS
 - Low power operation
 - Impulse noise immunity
 - Tuner interfaces
 - Target: MBRAI specs
 - PID filtering
 - MPE-FEC – erasure RS decoding

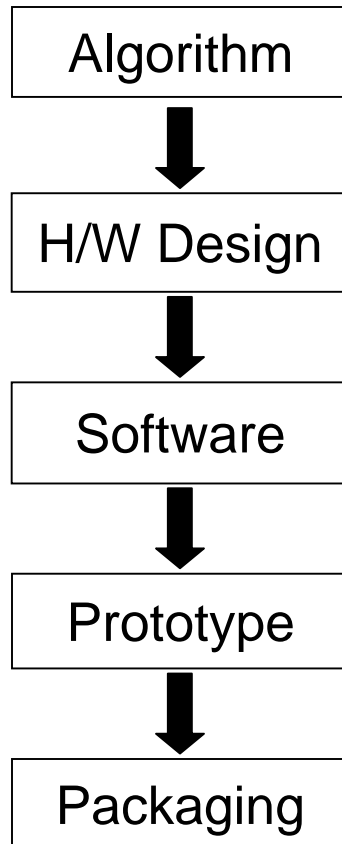
SONY

H/W Design



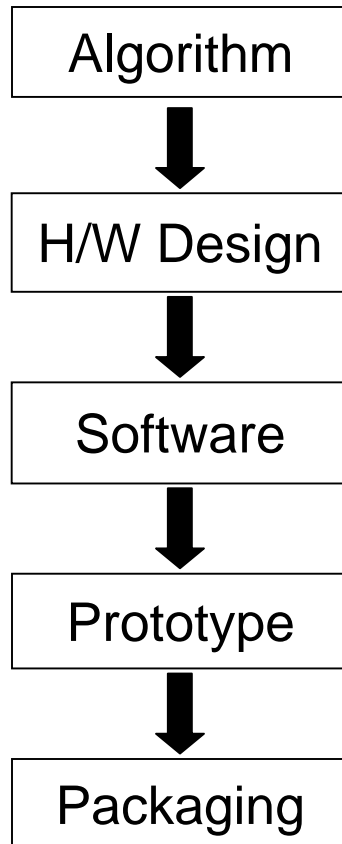
- Internal SRAM is a large part of die area
 - Novel algorithms to reduce SRAM
 - New technologies to improve MP yield
- Low power implementation
- Tuner interface
 - Zero versus Low I.F.
 - Flexible AGC algorithms
- Codec interface
 - SPI
- Control interface
 - SPI or I²C

Software



- DVB-H IC may include an embedded CPU or SES will provide S/W driver for external host CPU
- DVB-H functions suited to S/W:
 - Signal acquisition
 - AGC
 - MPEG2-SI navigation
 - Signal quality statistics
 - Power control
 - Hand-over

Prototype



- 1st prototypes use FPGA eval platform



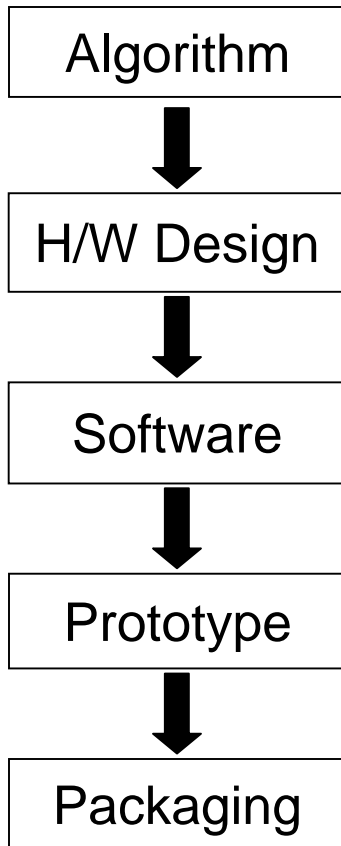
- After successful laboratory evaluation the design is transferred to a dedicated PCB



- These PCBs are used for field trials

SONY

Packaging



- 2-in-1



- Module



SONY

Semiconductor & Electronic Solutions

Thank you.

Questions?