chipus

Custom ASIC

Success Cases

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IOT PMIC ASIC

Highlights of the Project:

- DC-DCs (2 bucks and 1 boost)
- Battery Charger up to **1.1 A**
- LED Driver
- Load switches up to 100mA
- ULP LDOs
- USB interface for battery charging
- Two-Wire interface
- Integrated poly fuses (designed by Chipus)
- Ultra low power (350 nA) in idle mode

Chipus Responsibilities

- ASIC specifications
- ASIC design
- ASIC characterization
- Production test development













Proprietary uP with HV Analog ASIC

Highlights of the Project:

Microcontroller developed by Chipus Functionalities:

- 8-bit microcontroller core
- Integrated EEPROM
- Integrated SRAM
- Watchdog, timers
- 10-bit SAR ADC
- Capacitive touch sensor interface
- 30V voltage regulator
- 30 V/20mA Drivers

Chipus Responsibilities

- ASIC specifications
- ASIC design
- ASIC characterization
- Production test development







Micrograph of ASIC



Packaged ASIC







RFID ASICs

Highlights of the Project:

- 3 RFID ASICs developed
- Compatibility
 - EPC Gen2 standard
 - GB standard
- Analog front-end designed by Chipus
- Licensed RTL of basebad from 3rd party
- Integrated ultra low power NVM from 3rd party
- Sensitivity as low as -17dBm

Chipus Responsibilities

- ASIC specifications
- ASIC design
- ASIC characterization
- Production test development



Micrograph of RFID





0.8mm²





China Brazil

Magnetic Sensors ASIC

Highlights of the Project:

- Innovative integrated Magnetic Sensor
- Fully integrated Analog-Front End
- Ultra low power (250 nA)
- Disruptive Technology (MTJ)
- Integrated poly fuses
- Specs to Production in 18 months
- Intense interaction with FAB to due to support needed to the new sensor

Chipus Responsibilities

- ASIC specifications
- ASIC design
- ASIC characterization
- Production test development



Micrograph of ASIC





0.5mm²





Camera Readout ASIC

Highlights of the Project:

- Complete development of digital section
 - Specification
 - RTL
 - Functional verification
 - DFT insertion
 - Digital backend
- Chip level integration
 - Digital implemented at Chipu
 - +600 sigma-delta ADCs
 - High voltage circuitry

Chipus Responsibilities

- ASIC specifications for digital section
- Complete design of digital section
- Sign-off/tape-out/communication with foundry
- Bring up



GDS and Micrograph of ASIC











36V 3A Buck DC/DC Converter ASIC

Highlights of the Project:

- Input voltage up to 36V
- Configurable output voltage
- Output current up to 3A
- PWM and PFM operation modes
- Various switching frequencies
- Built-in ultra low power references

Chipus Responsibilities

- ASIC design
- Bring up



Micrograph of ASIC

*customer did not allow disclosure of foundry









China

FPGA to ASIC conversion

Highlights of the Project:

- FPGA to ASIC conversion
 - Altera (Intel) MAX7000 EPM7064
 - o Obsolete FPGA
- Pin and IO compatible
- Based on RTL from customer
- Constraints review and update
- Functional simulation
- ATPG generation
- HW/SW development for IC characterization

Chipus Responsibilities

- Functional verification
- Digital backend
- HW/SW development for IC characterization
- Characterization (ambient and high temperature)



ASIC under test











Germany

EDC ASIC for Optical Communications

Highlights of the Project:

- Full turn-key engagement
- Electronic Dispersion Compensation (EDC)
- PAM4 compatible
- 2 individual channels
- 28Gbaud/s
- I2C communication interface
- Custom BGA package
- On going project

Chipus Responsibilities

- ASIC specifications
- ASIC design
- ASIC characterization
- Supply chain management
- Provide tested parts to customer



GDS of EDC ASIC









Thank you