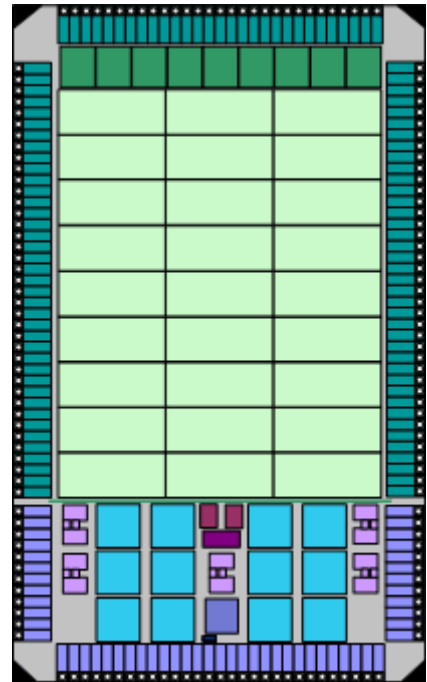


VCA-1 – General Purpose Platform

The VCA-1 platform contains 34 Op-Amps and analog building blocks to create a wide range of analog circuits with bandwidths from DC to 10 MHz. The op-amps on the VCA-1 support via-configurable gain bandwidths from 2 to 25MHz. The digital section of the VCA-1 contains over 40,000 logic gates and distributed SRAM.

The VCA-1 utilizes a single mask layer to change analog, digital, and memory circuits resulting in:

- Reduced NRE Charges
- Rapid Time to Prototypes
- Fabrication Time in Weeks not Months
- Reduced Risk



Resources

Digital

- **40,500 Logic Gates**
- 54 Kbits of 1-Port SRAM
- 72 Configurable Digital I/O
- 3.3V Digital Power

Analog

- **34 Op-Amps** and supporting resources: R, C, Trans, Switch
 - 24 Single-Ended Op-Amps
 - 6 Wideband Op-Amps
 - 4 Low Noise Op-Amps
- 2 10-bit, 1MSPS DACs
- 42 Analog I/O
- 3.3V Isolated Analog Power

Applications

- Microprocessor plus Analog
- Data Acquisition
- PID Controller
- Audio and Voice
- Analog to USB Applications
- Filtering
- 8051 and Analog
- General Mixed Signal Processing
- FPGA + Analog → ASIC Conversion

Digital Resources

▪ 40,500 Logic Gates

- 27 Logic Tiles – LT2K-1P-1500
- 27 Distributed SRAM
 - 64 x 32 1-Port RAM (2048-bits)
 - 55,296 bits total distributed RAM

▪ 72 Digital I/O

- Via Configurable Options
 - Input, Output, Bidirectional
 - Slew Rate Control
 - Pull-Up, Pull Down
 - Drive Strength
 - 4 Digital VDD Pads
 - 4 Digital VSS Pads

Analog Resources

- 34 Op-Amps plus Resources
- 3 Digital to Analog Converters
- Op-Amp Gain Bandwidths up to 18MHz
- 12 Single-Ended Analog Tiles

SE-A-TILE Resources

- 2 Single-Ended OTA/Op-Amps
- 18MHz Gain Bandwidth
- Capacitor Array
- Resistor Array
- Transistor Array
- Switch Array
- Logic Array
- Configurable Bias Generator

▪ 6 Wideband Op-Amps (OA02)

- Gain bandwidth = 25MHz

▪ 4 Low Noise Op-Amps (OA03)

- Gain bandwidth = 3MHz

▪ Digital to Analog Converters

- 2 D2A0801 – 8-bit, 1MSPS R2R Ladder DAC

Analog to Digital Converters can be created as soft-IP using the OTA/Op-Amps, switches, and capacitors within the array. Sigma-Delta and Successive Approximation converters with resolutions up to 14-bits and sample rates up to 1MSPS are realizable.

▪ Miscellaneous Analog

- Band Gap
- Voltage Reference Network

▪ 74 Analog I/O

- Via Configurable Options
 - 1500 50, 0 Ohm pad resistance
 - 4 Analog VDD Pads
 - 4 Analog VSS Pads