FPAA: Field Programmable Analog Array

Routing

Logic

Inputs / Outputs (Analog or Digital)

FPAA: Field Programmable Gate Array

Routing

Logic

Inputs / Outputs
“She had your dark suit in greasy wash water all year.”
FG circuits enable in one device:

- Programmable Memory
- Transistor for Computation
- Potential adaptation

Large Scale FPAA Devices utilize high density of Programmable and Configurable components (often the same components)

- FG 10 year lifetime, 10-100 µV)
- Electron Tunneling (erasure)
- pFET channel Hot-Electron Injection (precision programming)
FPAA Routing

CAB
Computational Analog and/or digital Block

C Block:
Routing to CABs

S Block:
Routing to Routing

Crossbar FG Switches

Manhattan Geometry
RASP 3.0: First SoC FPAA IC (2016)
FPAA Infrastructure

SoC FPAA

Circuit / System Application
Build on SoC FPAA

Low-Level FPAA Tools
High-Level FPAA Tools
Remote SoC FPAA
FPAA Education

Analog Tools

Built-in Self Test
Hardware Abstraction (calibration, mismatch)

FG Programming on SoC FPAA
PC Board Infrastructure

Further Compatible SoC FPAA ICs
Scaling SoC FPAA

FPAA Hardware

Soc FPAA

[TVLSI2016]
[JLPEA2016]
[TVLSI2017]

[EWME2016]
[MSE 2015,17, FIE2016]

[TVLSI2016]