

OKIKA Devices is a U.S. semiconductor company focused on developing next-generation analog technology "FPAA(Field-Programmable Analog Array: reconfigurable analog circuitry)" Recent developments include the acquisition of analog IC company Anadigm to enhance its FPAA technology.

## OKIKA Devices Technology summary

### 1. CoreTechnology: FPAA(Field-Programmable Analog Array)

FPAA is a technology often called the analog version of an FPGA.  
Its key feature is the ability to reconfigure analog circuits in real time via software.

#### Features of FPAA

- Analog signal processing can be modified via programming
- Integrates filters, amplification, modulation, sensor processing, etc., on a single chip.
- High-speed prototyping (no need to rebuild hardware)
- Lower latency and power consumption compared to digital processing

#### Applications

- IoT sensor processing
- Robotics
- Medical devices
- RF/Communications
- Analog control systems
- Research, Development, and Education Applications

### 2. Product Lines (Examples)

- |                                       |                                              |
|---------------------------------------|----------------------------------------------|
| • Apex Boards (SING1 / Dual2 / Quad4) | FPAA Board for High-Speed Analog Prototyping |
| • OTC2310K04-PIKA                     | FPAAHAT for Raspberry Pi                     |
| • OTC2902K SoC FPAA Board             | Analog +Digital Control SoC FPAA             |

### 3. Corporate Developments

Acquired Anadigm (2025)  
Acquired analog IC company Anadigm to accelerate FPAA technology enhancement.

- Culmination of 7 years of joint development
- Full transition of Anadigm's products and support
- Expanded presence in the analog signal processing market

### 4. What's so technically impressive?

FPAA is not yet commonplace, but **it is highly innovative in the world of analog circuits.**

#### Differences from conventional analog circuits

| Conventional analog circuits (discrete configuration) | FPAA configuration                           |
|-------------------------------------------------------|----------------------------------------------|
| Circuitry is fixed                                    | Circuit specifications can be modified later |
| Design and manufacturing take time                    | Can be changed immediately via software      |
| High design cost                                      | Rapid prototyping                            |
| Lacks flexibility                                     | Supports multiple applications               |

## Background of the Anadigm Acquisition (Why OKIKA acquired Anadigm)

### 1. Acquisition as the "final stage" of a 7-year joint development effort

OKIKA and Anadigm have jointly developed FPAA technology over the past seven years.

To bring the results to market, it was necessary to integrate both companies' technologies and product lines

\* The acquisition was a natural progression and the culmination of their joint development

### 2. The FPAA(Field-Programmable Analog Array)market is poised for significant expansion

Anadigm is a pioneer in FPAA, while OKIKA is an emerging company in analog signal processing. By integrating both companies' strengths:

- Accelerate FPAA market introduction
- Potential to replace traditional fixed analog ICs
- Target adoption across diverse fields, including IoT robotics, and healthcare.

### 3. Integration of products, customers, and support systems

Through the acquisition, OKIKA will:

- Assumes all Anadigm products, operations, and support
- Integrate existing customers directly into the OKIKA ecosystem
- Aiming to expand market share and strengthen customer base

### 4. To accelerate innovation in analog ICs

FPAA is called the "analog version of FPGA,"

an innovative technology enabling real-time software reconfiguration of analog circuits.

OKIKA leverages this technology to:

- More high-performance
- Lower power consumption
- more compact

to advance it.

### 5. The major shift in the analog market: "From fixed circuits to variable circuits"

Traditional analog ICs are fundamentally fixed-function.

FPAA enables

- Allows circuit modification after production
- Enables high-speed prototyping
- Ideal for IoT and AI sensors

These strengths align with the future direction of the analog market.

OKIKA chose acquisition to lead this trend.

Summary: The Essence of the Acquisition

OKIKA acquired Anadigm to fully integrate its technology, products, and customer base, aiming to establish FPAA technology as the global standard and accelerate innovation in analog ICs.

### Key advantages of FPAA from a manufacturing perspective

1. Reduced mask costs (advantageous as an alternative to analog ASICs)
  - Analog ASICs require multi-layer masks during manufacturing, and mask costs become extremely high as process scaling progresses.
  - FPAA uses generic reconfigurable analog blocks (CABs), eliminating the need for individual mask designs during manufacturing.
  - This offers significant cost advantages, especially for low-volume production and prototyping.
2. Post-manufacturing reconfiguration capability (also contributes to yield improvement)
  - Analog circuit configurations can be modified post-manufacturing, allowing design changes and fine-tuning to be accommodated in later stages.
  - Significantly reduces the risk of requiring remanufacturing (respins) due to design errors, as seen with ASICs.
  - Routing can be adjusted to avoid defective areas, further improving yield.
3. Structure resilient to analog circuit variation
  - The CAB in FPAA consists of components relatively robust to process variation, such as op-amps and switched capacitors.
  - Performance variations due to manufacturing variations can be easily corrected through configuration changes or calibration.
4. Shortened development time (reduced manufacturing lead time)
  - Eliminates the need for long manufacturing lead times typical of ASICs, enabling rapid cycles of design → prototyping → evaluation.
  - Functional changes can be made after manufacturing, enabling agile product development.
5. Easy integration with analog SoCs
  - Recent FPAAs increasingly adopt SoC architecture, integrating analog processing, digital control, and memory onto a single chip.
  - Unified manufacturing processes reduce both manufacturing and implementation costs compared to multi-chip configurations.
6. Suitable for mass production of small-scale analog circuits
  - Analog circuits often require dedicated designs for each application, but FPAAs can support multiple purposes on the same chip.
  - Shared manufacturing lines make it suitable for mass production of medium to small-lot products.

### Summary

FPAA is a device offering significant advantages in today's environment where analog ASIC costs continue to rise, including reduced manufacturing costs, improved development efficiency, enhanced yield, and greater flexibility in subsequent processes. and flexibility in back-end processes. Particularly for IoT devices and sensor fusion applications involving analog processing, FPAA's manufacturing advantages are strongly leveraged.

### Benefits of Adopting FPAA from a Manufacturing Perspective

Focusing on the "manufacturing floor" perspective of the final product, the benefits of FPAA (Field-Programmable Analog Array) come into play from a slightly different angle than the advantages for designers. For the factory floor, cost, yield, man-hours, and stability are everything.

FPAA's nature as an "analog that can be changed later" proves extremely powerful.

#### 1. Reduced assembly labor and defect rates through fewer components

- Eliminates the need to build analog signal processing using multiple op-amps, filters, gain circuits, etc.
- Integration onto a single chip reduces the number of mounting points, minimizing solder defects and mounting errors
- Simplified BOM management and reduced procurement risk

Manufacturing sites find "fewer parts mean easier work " making this a significant advantage.

#### 2. Eliminates post-manufacturing adjustment work (trimming/variable resistor adjustment)

- Conventional analog circuits often require post-manufacturing adjustment steps using variable resistors or trimmers
- With FPAA, adjustments are completed simply by digitally rewriting the set value
- Automation (using programming fixtures) is straightforward, reducing manual labor and ensuring consistent quality

Reducing adjustment labor on the production line to near zero represents **substantial cost savings**

#### 3. Easily absorbs manufacturing variations (improves yield)

- Analog components exhibit significant lot-to-lot variation, temperature characteristics, and individual differences
- FPAA allows post-adjustment of internal parameters (gain, filter characteristics, offset correction, etc.)
- Individual variations can be corrected to produce passable products, increasing yield

For the manufacturing floor, "defects that can be saved through adjustment" are extremely valuable.

#### 4. Can accommodate design changes without re-manufacturing boards

- Specification changes often occur during product launch
- Typically, this would require PCB revision, but with FPAA, only the circuit configuration needs to be changed
- This avoids halting the production line, significantly reducing schedule risks

This is a particularly effective point at **mass production launch sites**

#### 5. Facilitates automation of manufacturing tests

- Test loopbacks and diagnostic circuits can be integrated within the FPAA
- Simplifies manufacturing test fixtures, enabling shorter inspection times and improved inspection accuracy
- Fault analysis also becomes easier

Analog circuit testing is inherently labor-intensive, making this a **significant benefit for the production floor**

#### 6. Reduces component EOL (End of Life) risk

- Analog ICs frequently face EOL, requiring re-evaluation with replacements
- FPAA supports multiple applications with a single chip, resulting in lower EOL risk
- Suitable for long-term stable operation on production lines

For manufacturing sites where "changing a part means redoing everything," **this is extremely important**