Analog Devices (ADI) offers a broad range of industry-leading signal processing components, products and solutions. The Multi-Chip-Module line of products combines our monolithic devices into integrated solutions.

Multi-Chip-Module PBGA products are developed at the request of commercial customers like you, who require a cost-effective solution with enabling performance and integration. ADI has a long history of providing similar highly integrated subsystems for industrial, military and aerospace applications. Often, these products are designed for extremely high performance and harsh environmental conditions. Multi-Chip-Module PBGA products are designed specifically for commercial applications where cost is a major consideration.

ADI’s integrated solutions are much more than the sum of the monolithic devices. For example, the AD10226 is more than two monolithic analog-to-digital converters. The AD10226 is a complete IF-sampling converter module consisting of approximately 34 optimally integrated active and passive components.

The key to the AD10226 design, and other ADI integrated module solutions is the high-density interconnect design expertise and implementation. In essence, ADI’s interconnect technology is a "component" to be leveraged throughout the development and manufacturing process, which improves and optimizes system performance.

When comparing the cost of the discrete components versus the module solution, the value becomes clear, as the module provides the following:

- Multiple layers of optimized high-density interconnect and embedded power/ground planes.
- Fully-tested and guaranteed performance for the entire function.
- Improved thermal management.
- Faster time-to-market.
- Single component purchase, inventory and placement.

To obtain these same specifications/features when applying discrete components, the associated and often unanticipated additional costs include:

- Increased complexity and size of the printed circuit board.
- Test yield loss at the system integration level. By comparison, the module is a yielded subsystem.
- Troubleshooting and repair costs.
- More expensive thermal management hardware or printed-circuit-board design.
- Multiple component purchases, qualifications and inventory.
- Assembly yield loss at the system integration level as a result of multiple components.

Finally, the Multi-Chip Module PBGA solution offers additional benefits that are often overlooked:

- These solutions are part of a standard product family with planned year-to-year generational improvements in performance and functionality. This means that the subsystem function represented by the module will be enhanced by ADI over time, enabling system level improvements. With a discrete component approach, the customer assumes the costs associated with implementing generational improvements.
- Multiple labor-years of design/packaging/test/manufacturing expertise are represented in these Multi-Chip-Module products, and ADI has assumed the additional cost. In addition, design-risk and time-to-market implications and their associated costs should be considered in any assessment.

The MultiChip Products Group is focused on providing integrated solutions to our customers. Our 30+ years of design experience includes Linear, Digital and Mixed-Signal modules with a product portfolio that includes ADCs, DACs, signal-conditioning solutions, Multiprocessor DSPs, Synchro-to-Digital Converters, and many other signal processing subsystems. ADI’s broad line of signal processing IC solutions are combined with high-performance, high-density module interconnect technologies to address complex subsystem design needs.

We hope that this overview provides a good comparison of your design choices, and a better understanding of the additional value that ADI’s Multi-Chip-Modules may bring to your system. We welcome the opportunity to review your requirements.