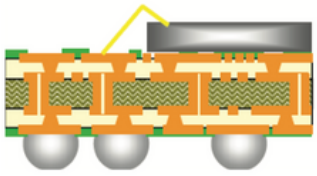
QPTECHNOLOGIES

# Fall Issue 1 2022

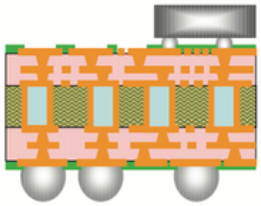
## Technology Focus:
## Meeting Design & Process Requirements for Advanced Laminates

**Type 1:**
**WB/FC-BGA/CSP Package**



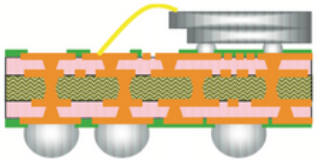
- BT core <0.2mm
- BT prepreg build up
- Subtractive process
- Off-set via
- Filled via plating
- WB or FC assembly package

**Type 2A & 2B:**
**FC-HDI BGA Package**



- Low CTE FR4 core 0.4/0.8mm
- Prepreg or ABF build up
- mSAP or SAP process
- TH filling via stack
- Filled via plating
- FC assembly package

**Type 3 (MIS):**
**Ultra HDI Module/**
**FC Package**



- **Ultra HDI L/S capability**
- **Cu filled via plating technology**
- **Thin core handling/alignment**
- **Multi-chip module**
- Coreless <0.2mm
- ABF build-up SAP process
- Filled TH Cu
- Cu stud vias
- Via plating, via stack
- Multi or FC assembly package

Fueled by increasingly tighter geometries, we see an emerging need from our customers to perform design, simulation and fabrication of advanced laminates for their packaging requirements. This includes such additive-process materials as bismaleimide-triazine (BT) resin/glass fiber laminates and ABF, which stands for Ajinomoto Build-up Film. ABF and ABF-like materials are used for substrates found in PCs, routers, base stations, servers and IP verification.

Using BT, ABF and other rigid-polymer substrates affords customers some key benefits. BT delivers high heat and moisture resistance and low dielectric constant, while ABF is suitable for high pin count and high transmission and can meet fine line space and width chip design requirements.

Due to the nature of their build-up structures, these materials pose packaging and assembly challenges that we are able to meet using our advanced flip-chip and wirebond assembly processes. Moreover, our stable, well-managed supply chain affords us much better than industry-standard lead times for delivery of advanced laminates.

Using virtually any substrate type, QP Technologies can create board solutions to meet your unique requirements, with industry-leading quality and delivery times – depending on layer count, we can develop and provide an ABF build in 10-14 weeks. Through our substrate design and development service, we provide board solutions to meet your needs for a wide range of material. To learn more, please click here to download our "Design Rule for Package Substrates" handout.

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## Recent Announcement

## QP Technologies is Growing!


In response to rising customer demand, QP Technologies recently announced an expansion of our team and process capabilities. The announcement came at iMAPS International at the beginning of October, where our sales team had a successful week, meeting with current and potential customers.

"In fiscal 2022, we experienced another successive year of double-digit year-over-year growth, as demand for our products and services has remained high," said Ken Molitor, QP Technologies' chief operating officer.

Flip-chip assembly, overmolded quad flat no-lead (QFN) packages, and RF and high-power solutions are just a few new or broadened capabilities added to our portfolio. We've also expanded our focus to compound semiconductor materials such as graphene, gallium nitride (GaN), and silicon carbide (SiC) and advanced laminates such as FR-5, BT, and ABF – materials necessary to meet the stringent requirements of industries such as mil-aero and power. Next year, we'll also complete the requirements for AS9100 certification, which is crucial for serving the aerospace industry.

Along with expanding QP Technologies' portfolio, the team is growing through a hiring initiative across all departments. Ken stated, "Expanding our team will also heighten our ability to engage in emerging sustainable markets, such as electric vehicles." We believe 2023 will have exciting changes in store for QP Technologies, and we look forward to sharing these new developments.

## Employee Spotlight

### Ashley Knowles, Customer Service Representative

As QP Technologies continues to grow, so does our workforce, in every department and at all levels. This is particularly vital with respect to customer relationships – growing our business heightens the need for a strong customer service team. Ashley Knowles is the newest addition to this team, having joined the company in July 2022. She works from our St. Albans, Vermont, office supporting our East Coast and European customers.

Ashley brings a decade of experience in customer service, administration, accounting, purchasing, and HR to her position, and she holds a B.S. in accounting and an A.S. in business administration and management. Ashley works closely with Bill Lawrence, our technical sales manager, as well as her CS team counterparts Dustie Rivera and Gaby Till. (Please click on the links to read prior profiles on each of these exceptional team members.) In her role, Ashley provides in-depth support, addressing customer concerns, helping out with any questions they may have, assisting them with their orders, and staying on top of tracking information and shipping dates.

From a professional perspective, Ashley notes that she really loves helping customers, being supportive, and helping them figure out what they need and if they can get it when they need it. While some supply shortages on the materials side do still persist, she notes that it's important to keep the lines of communication open. Customers shouldn't have to contact us wondering about status of their orders – proactively letting them know if there are any issues or delays helps strengthen relationships.

When not providing stellar customer support, Ashley is busy raising three boys ranging in age from 2 to 14. She enjoys hiking, as shown in the photo of her with her boyfriend and youngest son, and has recently taken up mountain biking with her family – their Vermont location affords many opportunities to pursue these pastimes. But when it's cold and snowing, she's happy to stay inside by the fire and read a good book!

## Event Recap

### iMAPS International 2022: Busy and Promising

Earlier this month, QP Technologies participated in the 55th iMAPS International Symposium on Microelectronics, held at Boston's Hynes Convention Center.


The conference was well attended by folks happy to network in person and learn about the latest in packaging and assembly – according to the show organizers, attendee numbers were: 865 attendees and 93 10x10 booths. We experienced a steady stream of booth traffic during the two-day exhibition, with both existing and prospective global customers coming by to talk with us. Displays of our package samples and laminate portfolio were a definite draw and helped spark in-depth technical discussions.

We especially experienced Interest in our work with advanced laminates, as well as in our expertise around advanced III-VI compound semiconductor materials. As the following article describes, we have a broad range of offerings in these areas, enhanced by our flip-chip assembly capabilities.

During the event, we also held productive discussions with key material and equipment suppliers, with whom we are working to develop strategies that ensure our ability to continue meeting customers' product development and delivery requirements. All in all, iMAPS 2022 was a resounding success, and we look forward to pursuing new and expanded engagements as a result.

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## Promex News

On Oct. 5, Rosie Medina, VP of sales and marketing for QP Technologies and our parent company Promex Industries, took part in a panel at PCB West 2022 titled "How Heterogeneous Integration Affects the PCB Industry."

Heterogeneous integration (HI) refers to assembly of dissimilar electronic components – these structures have also been called multichip modules, 2.5D/3D and hybrid assemblies. The selected components' interconnection drives their assembly and dictates which substrate materials should be used.

Users and designers need to know what they can and can't use easily, economically or reliably, while those wanting a heterogeneous assembly need to understand the consequences resulting from the interconnections and materials chosen, and to realize that currently, only a few capable assemblers can provide these heterogeneous assembly services.

The panel – whose participants also included Stephen Chavez of Siemens, Michael Creeden of Insulectro, Sanjay Dave of TSMC and Dr. Jawad Nasrullah of Palo Alto Electron – shared insights on how to heterogeneously integrate chiplets and how to work with board designers and manufacturers to take advantage of HI products. To learn more about industry efforts around HI, you can visit the IEEE Heterogeneous Integration Roadmap page here.

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## U.S. Chip Packaging with Mil-Spec Precision

A reliable and affordable alternative to ceramic packaging – Open-Cavity Plastic Packages (OCPP).

Our latest white paper expands on the benefits of OCPP for the mil-aero market. Download the paper here to learn how QP Technologies' OCPP can save you time, space, and money.

DOWNLOAD OUR WHITE PAPER

## About Us

QP Technologies is a leading provider of microelectronic packaging and assembly, wafer preparation, and substrate design and development services. We leverage proven technologies developed by our skilled staff, and we work closely with you to get your products to market quickly, with the highest quality prototype and production volumes.

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