

# Bond Home doubles down on product quality and boosts Engineering team productivity with Memfault



*If quality really matters to you, if you really care that your customers get the experience they expect - then you should be using the best-in-class reliability solution for your industry. In our case the answer was clear: Memfault.*



## Chris Merck

VP of Engineering, Bond Home

### Company Profile

- **Industry:** Consumer Electronics
- **Product:** Bond Bridge
- **Location:** Cresskill, NJ, USA
- **Chipset:** ESP32
- **Operating System:** FreeRTOS
- **Connectivity:** WiFi

### Benefits

- **An easy implementation** to begin collecting data from devices.
- **More efficient** issue investigation process.
- **Accelerate product development** while maintaining quality.

## About Bond Home

Bond Home provides a range of smart home solutions that help consumers introduce smart, automated experiences into their home in a cost-effective and environmentally conscious way. They do this through a range of their own connected products and by integrating their platform into products from other home appliance providers.

Bond Home cares deeply about customer experience, and wants their brand to represent a reliable and high quality choice for consumers.

One of Bond Home's leading products is the Bond Bridge, an RF to Wi-Fi bridge that allows homeowners to connect their existing motorized devices and make them part of a modern, automated smart home experience without having to go through the expense of replacing hardware. Bond Home has recently rolled Memfault out onto these devices with plans to expand usage onto other product lines as they double down on product quality across the board.

### Challenge

- Internal crash capture and monitoring system scaling consuming significant resources and not keeping pace with development
- Existing crash capture systems creating noise but not providing actionable insights
- Lengthy and complicated issue investigation process slowing product development
- Meeting increasingly stringent internal quality requirements without extending development cycles

The Bond Bridge is a mature product approaching its 6th year in deployment and 5th year on the current ESP32-based architecture. Bond Home is in the process of delivering a major firmware platform upgrade to their devices deployed in the field and has introduced Memfault to help them mitigate the risk of future upgrades, accelerate feature development times, and maximize product quality by identifying and resolving issues in the field, fast.



“ Maintaining our own debugging infrastructure requires constant maintenance and updates as we evolve our platform. On the other hand, Memfault just keeps investing and improving the platform while we are using it. Doing that ourselves would cost immense resources we are just not able to accommodate.

**Chris Merck**  
VP of Engineering



Bond Home already had an existing solution in place for collecting crash information and monitoring data which was being sent to AWS via MQTT and then using Sentry to visualize the information. However, they found that although a lot of issues were being reported, the crash data was not decoding properly creating a lot of noise for their teams but not providing information they needed to efficiently investigate. They also realized that maintaining their existing systems as they evolved their product platform was going to become an increasingly resource-intensive task.

They chose to implement Memfault for crash data collection to allow them to focus on accelerating product development cycles and provide their growing team with a single, easy-to-use tool to help them fix issues faster.

## Implementation

Bond Home integrated Memfault on their new firmware version for their existing ESP32-based Bond Bridge devices quickly.

Chris said, “Memfault has really great documentation for how to bring in the SDK but it still can be a bit intimidating. Linking into the firmware at that level requires deep knowledge so it was amazing to have support from the Memfault team throughout the process.”

He went on to say, “Overall the integration was pretty easy and Memfault has really great support for the ESP32 and IDF5/CMake.”

In total, the integration was up and running within a month and once integrated Bond Home started deploying Memfault to their production devices and immediately collecting data from the field.

“We have actually had a few issues as part of our most recent upgrade process that make me wish we already had Memfault on the devices because it would have made solving them a lot easier.”

**Chris Merck**  
VP of Engineering

“Our number one goal with Memfault is to have really good crash analytics. A device that crashes is going to have a user facing error and directly translates to a quality problem in the software. We want to get down to virtually no crashes. Crash analytics is also the hardest thing to do yourself.”

**Chris Merck**  
VP of Engineering

## Solution

### Faster, easier issue resolution: hours, not days

Troubleshooting crashes on embedded devices is difficult, time consuming and often intimidating. It also creates a trade-off, do you spend time resolving issues, or building new features. This is a much more difficult question to answer when solving issues takes a lot of time. With Memfault in place, Bond Home was able to simplify and dramatically accelerate the issue investigation process, letting them address more issues without sacrificing too much of their feature development resource.

The result - a higher quality product and a more efficient Engineering function.

Memfault's intuitive UI and comprehensive crash data collection makes investigating issues a whole lot easier for Engineers of all levels. Chris said, "We love the way the backtraces are visualized, being able to fold open each thread, click on one of the frames and see the local variables. Click on the local variable, see where it is in the memory. Taking a really archaic subject that even most C developers don't feel comfortable with and making it intuitive and visible - that's a killer app."

As a result Bond Home is able to fix issues faster, get their growing Engineering team operating more efficiently and maximize their focus on feature development.

### More efficient cross-team collaboration

Memfault is now used by multiple teams across the development function at Bond Home helping improve cross-team collaboration on feature development and issue resolution. Being able to simply share a link to a specific crash in Memfault between teams has proved extremely powerful. Now any member of a team who encounters an issue simply sends a link to that specific issue in Memfault to a Firmware Engineers to resolve.



“ In the past firing up J-tag and trying to reproduce issues required that the issue be really, really significant before we could justify investigating with a debugger. Now it's just much easier to start that investigation. It's going to take an hour instead of a day.

**Chris Merck**

VP of Engineering



Chris said “the Memfault link is shared with the Firmware Engineer which means that they already have a very good idea of the context and don’t need to reproduce that issue on the desk. They can just fix it and push a commit. It definitely speeds up the work.”

For example, as Mobile and Backend Engineers update their devices to development versions and experience an issue they now just find the device on Memfault by searching the serial number, and send the link over to the firmware team. Similarly, Memfault issue links are included in the test reports created by the QA and Automated testing teams. All of this combines to create a much more efficient process both for the Firmware Engineers and the rest of the development team.

Chris recalls how this cross team adoption happened naturally as teams recognized the value of the information in Memfault. Chris said, “After 1 or 2 issues where I posted a link to the Memfault dashboard the team started naturally using the tool. I shared out the dashboard and everyone just recognized this was a useful tool for speeding up their work.”

### Maximize product quality without slowing down

Quality is something Bond Home cares deeply about. They have built a reputation for reliable products and as they continue to grow not only their product lines but also integrate into other companies' solutions the quality bar gets higher and higher.

However, Bond Home are growing fast and want to continue to accelerate their development timescales without sacrificing product quality. This focus on product quality using traditional testing systems was presenting a bottleneck, slowing the team down.

Memfault’s ability to help the team resolve issues in development faster, and catch and quickly solve any issues that might occur in production allows them to move fast with confidence. When referring to their quality process Chris said, “Memfault makes that process more efficient and helps alleviate the bottleneck for new feature and product development.”

Learn more about [Bond Home](#).



“ For consumer electronics, users have high expectations and very little patience. If you have a strong consumer brand, reliable software is a critical part of protecting that brand’s reputation.

**Chris Merck**

VP of Engineering