

SYNCUSTECH

CASE STUDY

Gateway of Building Energy
Management System – Byucksan Power



PROJECT SCOPE

Byucksan Power is a solution provider for Building Energy Management System (BEMS), which consisted of gateway and server based on an open platform. Recently, its business scope expanded to IoT (Internet of Things) with newly developed functions like real-time monitoring, automatic remote control, and maximum demand control. Byucksan used to outsource low-level standard main board, which has now been transformed into a powerful x-86 main board.

CLIENT'S CHALLENGE

The main board had to be slim, low power, high performing, and fan-less. The gateway had to communicate with various components through the Internet and three serial ports of RS422/485 were required for networking. Safe auto parking was to be secured, in case of an unpredictable power outage along with fully supported wireless communication.

SOLUTION AND IMPLEMENTATION

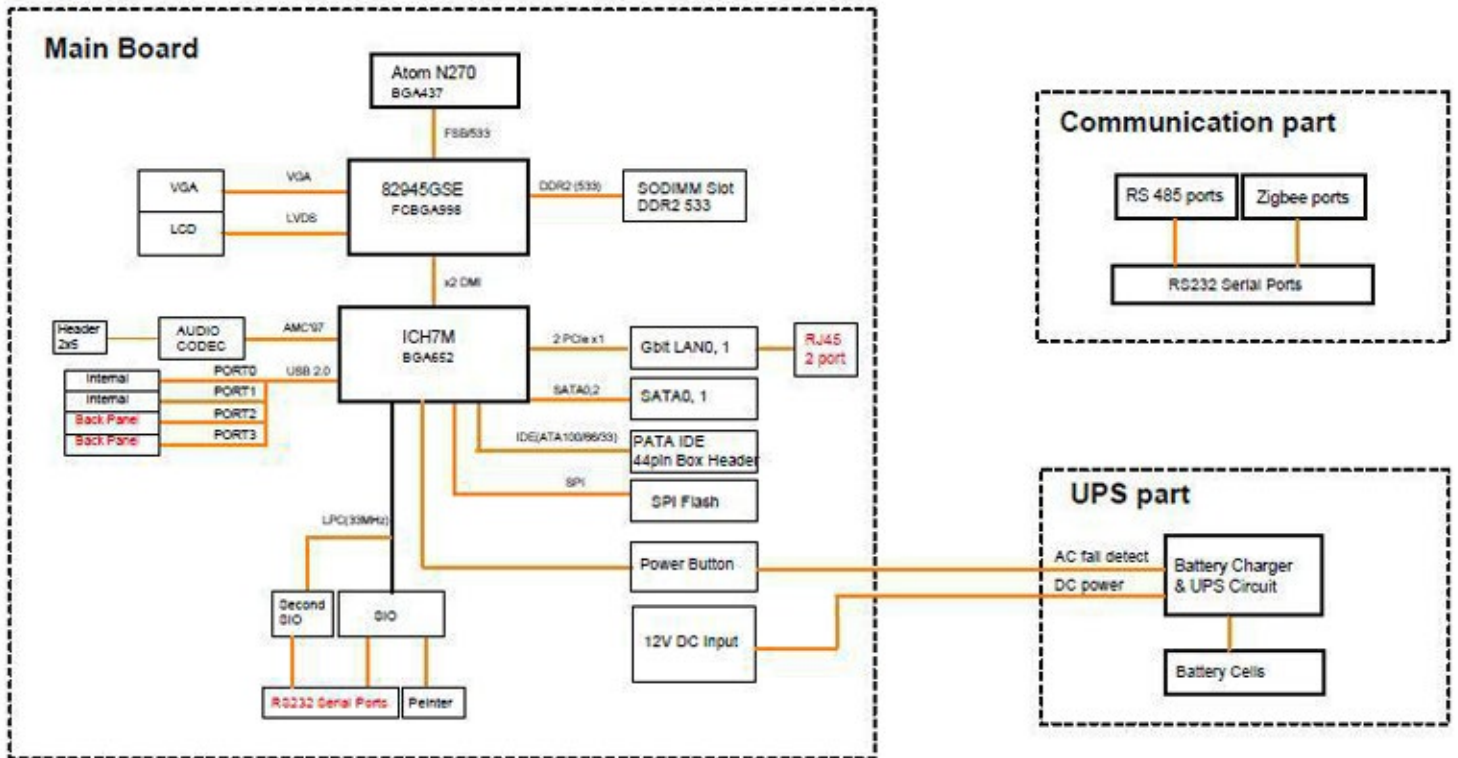
Intel Atom platform was the answer. SyncusTech utilized EMB-N270B, which has been modified to Byucksan's requirements. This helped production be both time-efficient and economical. A single-tier type replaced the rear port block of double-tier, so the platform would be slimmer. SyncusTech developed a sub-board, which converted three among six ports of RS232 on EMB-N270B into RS422/485 ports. Another sub-board was designed for Zigbee communication models. To utilize auto-parking, a subsystem of UPS (Uninterruptible Power Supply) with lithium-ion battery was developed as well.

CONCLUSION AND BENEFITS

Byucksan considered creating a whole new system for its project, mainly because none of the standard main boards were fulfilling the needs and requirements. Fortunately, the customized solutions that SyncusTech provided were able to take the product to the next level and deliver satisfying results. Needless to say, Byucksan was content with the time and cost-efficient service throughout the production. The new gateway armed with the powerful Atom platform has been applied in various forms and products such as a smart grid.



System Block Diagram



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