About the Client

The client is a Tier1 focused on development, manufacture and sale of transmissions and automobile components. The company is one of the biggest CVT (Continuously Variable Transmission) suppliers and its only manufacturer in the world for automobiles ranging from mini vehicles to large passenger cars.

Business & Technology Context

Auto Code Generation is a process which enables model based development of production software. In this process, models are converted into production codes (or optimized C codes) for electronic control units. This generated code is then tested in the target ECU, thus enabling an additional layer of verification and validation to detect errors, if any. Auto code generation helps in reducing hand-coding time and thus reduces the probability of manual coding errors.

This Tier1 had decided to re-architect its transmission system’s software by adopting model based development approach. The client wanted to generate auto codes from the models in the shortest possible time to validate their new CVT’s architecture for a production program. Hence the client was looking for a partner with high productivity in generating auto codes while maintaining superior quality.

The client found a trusted partner in KPIT due to its previous track record of successful engagement in model based software development. Hence the Tier1 decided to engage KPIT for three months to generate auto codes for medium to high complexity models. The Tier1 also expected KPIT to provide consulting on testing strategy of the auto generated codes.

KPIT’s Solution

KPIT’s commitment to this engagement helped in successful generation of auto codes in half the time, with the same number of resources as compared to industry standards*. KPIT’s efficiency in quickly achieving the milestone was highly appreciated by the client. KPIT was not only successful in generating auto-codes within the desired timeframe, but also ensured superior quality delivery. KPIT ensured that the generated code seamlessly integrated with client’s production software. To enable this KPIT adopted the following approach:

• Set-up an Auto-Code Generation Process
• Developed Automation Framework for verification of MIL and SIL results and created data dictionary for Toolchain.
• Developed Automation Scripts for reducing the effort and improving the productivity and quality

* KPIT’s in-house research showed that on an average 2 days are required for auto coding of approximately 3000 blocks in a model per day by one employee. However KPIT could achieve it in 1 day.
Key Success Factors and Client Benefits

- KPIT’s generation of auto codes in record time allowed the customer to validate and integrate new features into the production program
- KPIT’s automated framework helped in 60% reduction in efforts without compromising on the quality
- Exhaustive verification and validation of the generated code ensured zero defect rate and high quality
- Systematic reviews at every step of the auto code generation process made verification robust & faster
- KPIT’s in-house tools for Auto coding helped the client to save their investment cost for tools

“Generating auto codes for high complexity models in 3 months with limited resources was a huge challenge for us. We developed the automation framework in such a way that it contained exhaustive set of reviews at every step, thus reducing rework efforts. This helped us deliver the project within expected timeframe while maintaining the quality standards”

About KPIT
KPIT Technologies (BSE: 532400; NSE: KPIT) is a fast growing Product Engineering and IT consulting partner to Automotive, Manufacturing and Energy & Utilities companies. A leader in technology solutions and services, KPIT partners with 200+ global corporations enabling them to become more efficient, integrated and innovative enterprises.