# Virtual Integration for hybrid powertrain development, using FMI and Modelica models

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Dongfeng Commercial Vehicles (DFCV) is developing powertrain controls for a hybrid light truck. To support this development, a virtual integration platform is being implemented, using Modelica models and Functional Mock-up Units (FMUs) for the engine/EMS, gearbox, MCU/e-motors, driveline, tyres and longitudinal dynamics. Simulink models and/or c-code of the Hybrid Control Unit (HCU) and Transmission Control Unit (TCU)  are also integrated in the platform to achieve closed-loop simulation. The virtual integration allows reproducing accurately the overall vehicle behavior and is used for optimization of gearshifts, hybrid mode switches and hybrid drive strategies.
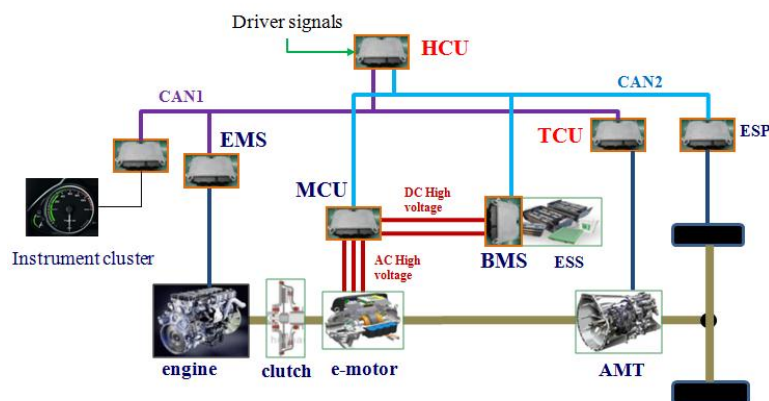


**Figure 1 : schematic of the hybrid powertrain**

## References

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