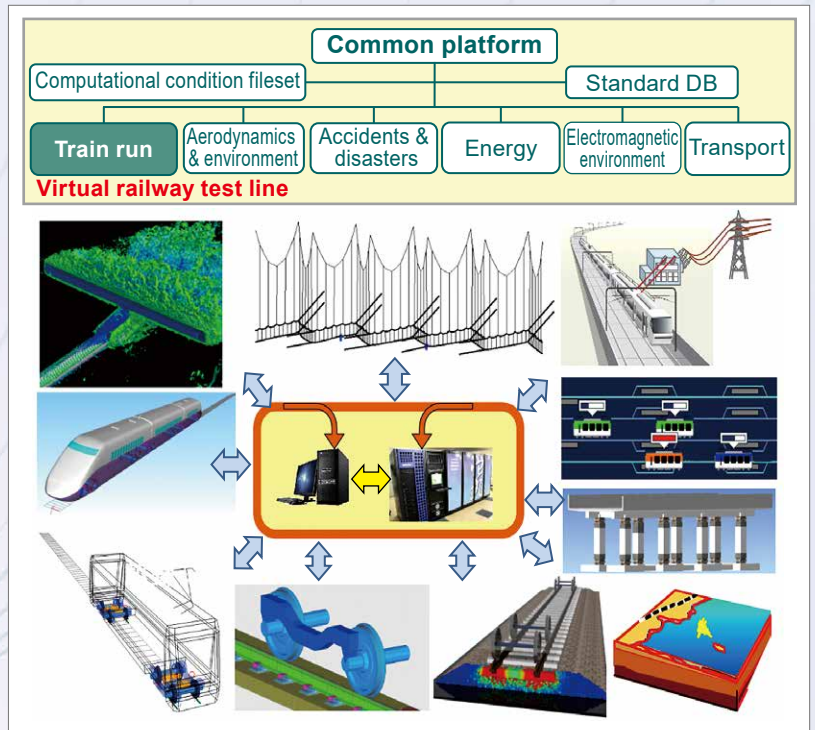


RTRI has been engaging in the development of railway simulators as a tool to improve the quality and efficiency of research and development efforts and thereby help optimize railway systems and understand complex phenomena.

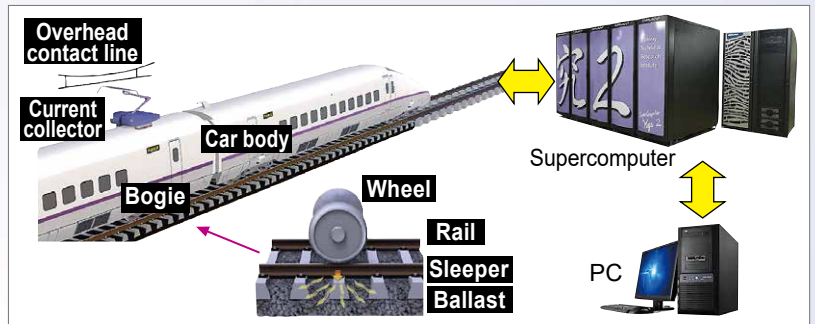
System configuration for railway simulators shows the overall configuration of the railway simulators developed by RTRI up to 2020. The railway simulators are linked to each other for research and development purposes, offering enhanced capability especially in large-scale parallel and coupled computation of multiple simulators.

Virtual railway test line

The virtual railway test line is a railway test line created in a virtual space on a computer by coupling dynamics-related train running simulation techniques (for vehicles, tracks, current collection, etc.) (Railway test line in a virtual space). The virtual test line was developed by the following process: first the train run simulation techniques were improved while techniques for coupling those simulations were studied; then techniques were developed for the simulation of vehicles and tracks capable of handling elastic tracks and car bodies (Simulation of vehicle



System configuration for railway simulators



Railway test line in a virtual space



Dr. Tetsuo Uzuka
Managing Editor
(General Director, International Division)

Preface Message from the General Director Dr. Tetsuo UZUKA

Calculation and simulation are among the most fundamental elements of railway research and have been performed at RTRI for a long time.

Traditional simulation methods divide the object into small parts and calculate the (kinetic) interactions. The more recent,

so-called Digital-Twin method reproduces and combines the coherent functions of a complete railway system within a computer. Whichever method we choose, we need to strike a balance between field testing, laboratory experimentation, and simulation.