TransportBuilder

Real Time Dispatcher
Material Control System

THiRA-UTECH
THiRA-UTECH Business Area

One-stop Service Corporation
Providing Total Smart Manufacture & Logistics Solution

Consulting Manufacturing Solutions

+

Providing Solutions SCM/MES/ FA/IoT

+

System Setup and Management

Optimization of SCM and Production Planning

THiRA Planner - Production Planning
THiRA Scheduler - Work Scheduling
THiRA DCP - Sales Planning

Automation and Logistics Transportation Robot

THiRA VRO - Optimization of Delivery Planning
TransportBuilder - Return Control
Smart AGV - Logistics Transportation Robot
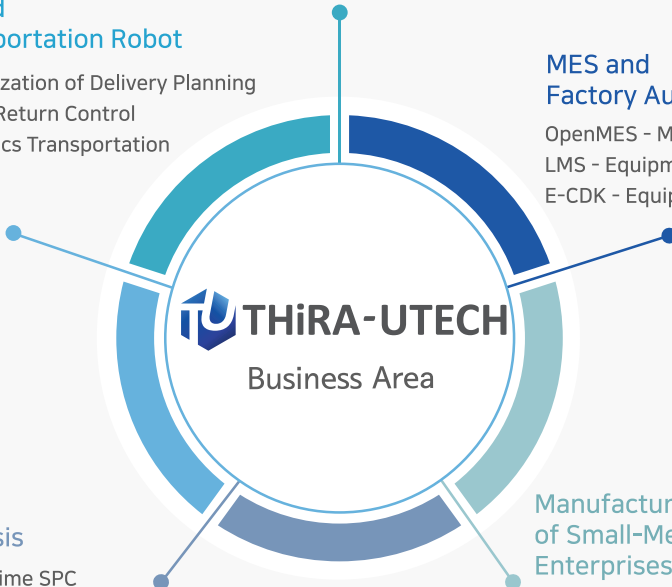
MES and Factory Automation

OpenMES - Manufacturing Mgmt.
LMS - Equipment Communication
E-CDK - Equipment Control

THiRA-UTECH
Business Area

Manufacturing Big Data Analysis

OpenRACS - Real Time SPC
ROEN - Quality Control

Manufacturing Platform of Small-Medium sized Enterprises

MICA - Integrated Control
SmartMOM - Manufacturing Mgmt.

TransportBuilder

Real Time Dispatcher & Material Control System

TransportBuilder Outline
Integrated Solution for Building Automated Material Control

This solution is a system to move materials automatically from a process to next one and build automated material control system efficiently, based on semiconductor standard specification.

TransportBuilder Main and Specific Functions
RTD / MCS

01 RTD Function
: Deciding Process and Material Movement of Manufacturing Factories

In one of the smart manufacturing line managing requirements, RTD is a solution providing Dispatch Decision by utilizing optimized Rule between process and process, equipment and equipment, AMHS equipment and production equipment. Clients maintain Line of Balance on manufacturing lines by organizing What-Next, Where-Next Rule dynamically and could apply optimized Rule in the present conditions of lines.

02 MCS Function
: Performing Logistics Movement of Manufacturing Factories

MCS is a solution providing the optimized material transport between transfer nodes by controlling auto-warehouse and transfer equipment. Clients are able to define the connection between transfer nodes and manage the shortest/the best route of transportation by simply providing Route through MCS. Also, MCS can communicate and controls any transfer equipment since it provides I/F module with flexible architecture for transfer equipment which is STK, C/V, AGV, OHT, etc.

Master Data Mgmt.

- Managing Dispatching Rule
- Managing process/Facilities Rule Mapping Information
- Managing each Process of Production Facility Information
- Managing Carrier Information
- Stocker, Production Facility Port Management
- Managing Returning Facility Information
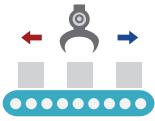
Specific Functions

Dispatching

- What-Next Rule (Lot Selection Rule)
- Where-Next Rule (Equipment Selection Rule)
- Time-Base What-Next Rule
- Rule Simulation Function

Automated Transportation

- Generation Transfer Route
- Prioritize Transfer Route
- Create/Cancel Transfer Command
- Managing Macro & Micro Command Statement
- Anomaly Handling to Transportation
- Transfer Equipment Test Support Function(Cycle Test)
- Transfer Equipment I/F Function based on SEMI E82, E88
- Data Synchronization with Transfer Equipment
- Host(RTD, MES) I/F Support

TransportBuilder Special Features

The Optimal Route, Efficient Moving Control, Flexible Equipment Interface

Automated Material Control and Transportation of Unmanned Manufacturing Lines

Transfer material through Where-Next decision for the equipment such as OHT, EMS, AGV, RGV, Stocker, etc. and What-Next dicision for Dispatch between continuous processes and transfer equipment control

Asset Support of Basic Rule Factor

Providing equipment constraints such as arrival and waiting time, field set-up standard, lot quality standard, due date standard, etc. and functions such as product interflows Rule and WIP Balance, etc.
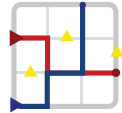
Dynamic Support for Dispatch Rule Development and Application

Application for Rule Editor and related services

Real Time Monitoring of Material Returns

Active decision in the light of transferring time, obstacles of transfer equipment, congestion, etc.

Providing Standard AMHS I/F based on SEMI E82, E88

Verifying distribution equipment, Providing distribution equipment, data synchronization and Host(RTD, MES) I/F function
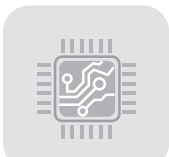
Provide Standardized Components

Supporting UI/UX component by standard development platform and providing development guide and samples for usage

TransportBuilder Application Field

Utilization in the industry where you would like to improve Asset Utilization through process transport automation

Among High Tech manufacturing lines and general manufacturing lines which would like to improve material transportation process in the production site, the clients who have Job-Shop production method and automated material input environment are introducing TransportBuilder.

Semiconductor

Display

Auto-ware house

Automobile

Tire

Household electric appliances

TransportBuilder
Real Time Dispatcher & Material Control System

TransportBuilder System Architecture
System Architecture

Presentation Layer

Web Service / Message Oriented Middleware

Custom Service Components

| MES I/F | AMHS I/F | APS I/F | Dispatching Rule | .... |

Business Service Layer

Business Process

| Basic Information | Optimal Equipment Selection Rule | Optimal Lot Selection Rule | Operation Sequence Management | System Management |

SOA Component Framework

Data Access Layer

JDBC, MyBatis

System Framework Layer

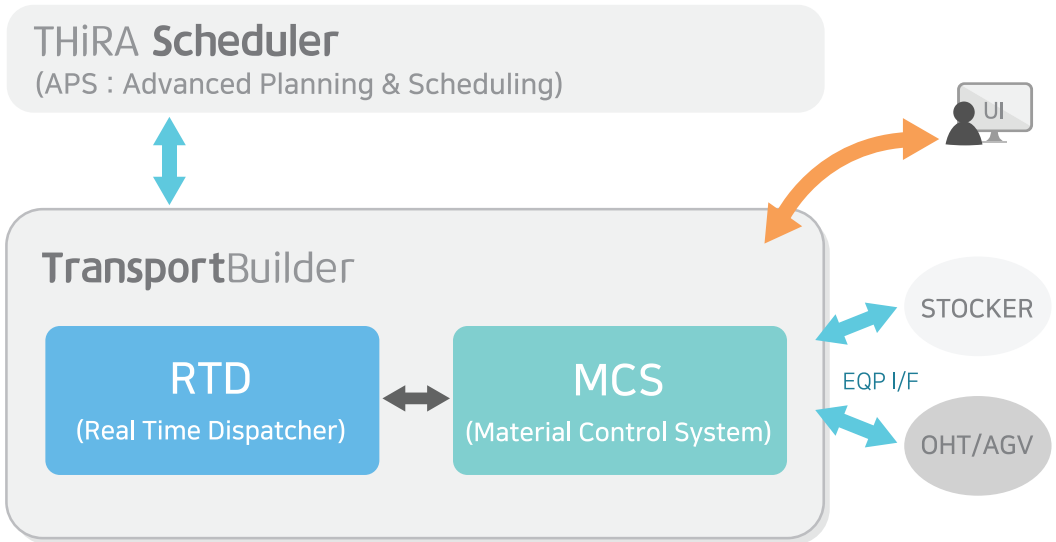| Persistence Transaction | Performance Monitoring | Remoting Messaging | Logging Framework | Error Handling | Testing Framework |

Java Platform based on J2EE

Web UI based on HTML5

Web Service

Monitoring / Report Screen

TransportBuilder System Structure and Main Display
Fab Monitoring / Rule Assign / Dashboard / Transport Report

THiRA Scheduler
(APS : Advanced Planning & Scheduling)

UI

TransportBuilder

RTD	MCS
(Real Time Dispatcher)	(Material Control System)

STOCKER

EQP I/F

OHT/AGV

● Example - Main Display

Fab Monitoring

Dashboard

Rule Assign

Transport Report