Comau Open Controller

Comau Open Controller is a Comau product that implements a fast connection between an external PC and Comau robots, granting the possibility to use additional and custom control algorithms and novel trajectory generation methods.

The Comau Open approach adds further power to the Robot Control Unit, and is designed for cutting-edge industries, universities, and research centers, who want to use their own motion strategy or algorithms to control a robot.

OPEN: an external PC can directly manage the robot using a communication protocol to generate the trajectory and/or to drive current references

POWERFUL: a lot of operative modalities are supported without requiring that the robot stops

EASY: PDL2 programming language gives the possibility to use move instructions, system variables, signal and semaphores for concurrence programming, TCP/IP socket communications, I/O management

NEW: from the technologies implemented by industrial engineers to the methodologies studied by research people in order to enable rapid prototyping approach

CONTROLLER: robustness and safety are guaranteed by classic supervising Comau Controller systems

An external PC interfaces in real time with a robot's control system to influence its movements and trajectory. In tandem with potentially enhancing or replacing parts of the industrial control, the robot's primary controller always remains actively engaged, thus ensuring stability, safety, and the smooth execution of its software tasks.

Benefits:

- More computational power
- Increase flexibility in getting information from external sensors, e.g. to implement
  - **Vision Algorithms:** Look & Move, Visual Servoing
  - **Interaction Algorithms:** Force control, Impedance control
  - **CAD Planning:** Surface movements, Complex Interferences.
- Fast prototyping
- Ability to develop and test new algorithms and solutions.
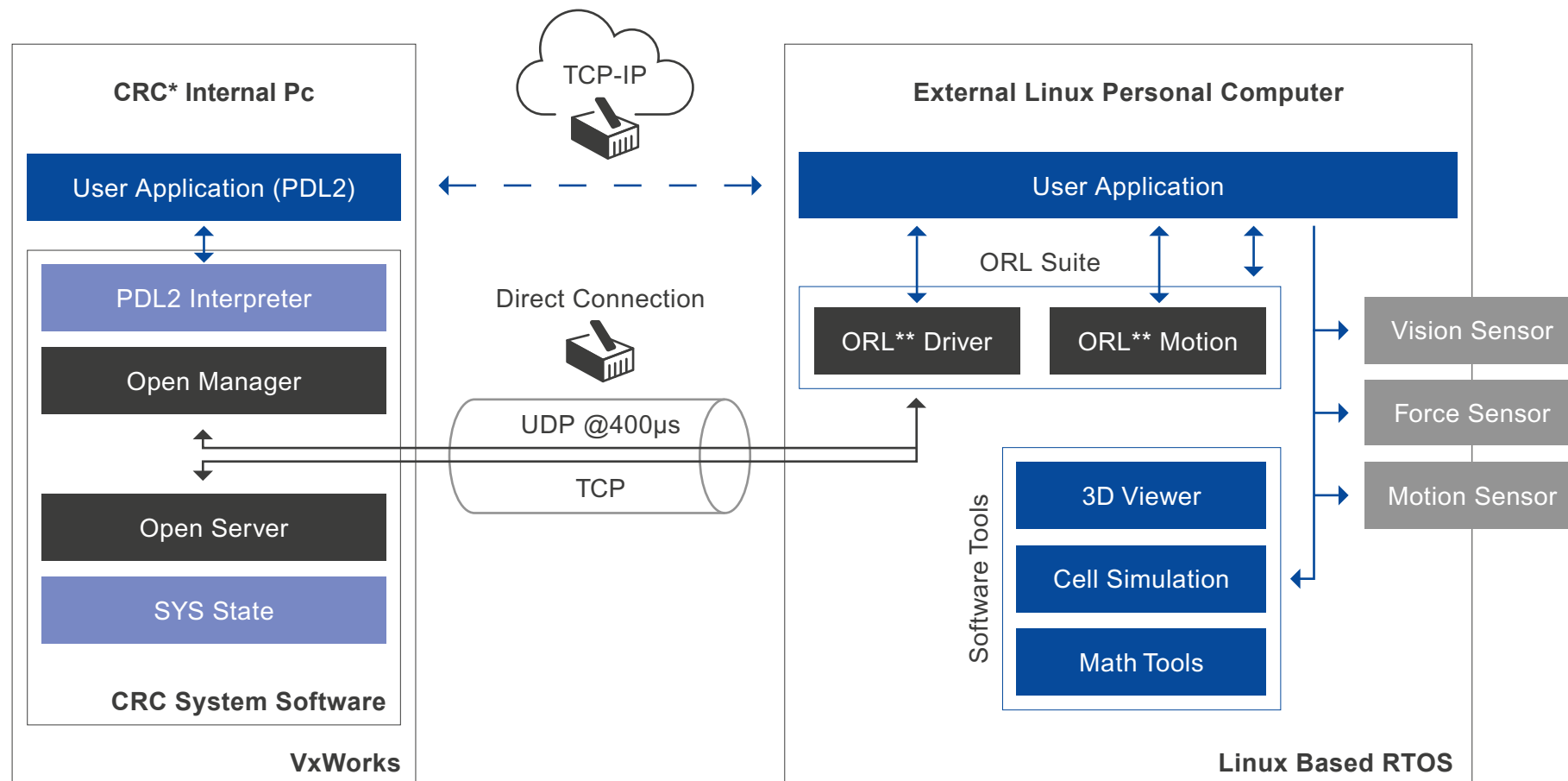
*CRC : Comau Robot Controller
**ORL: Open Robot Library

Features

The standard control processes can interact by additional control algorithms alternating and combining the control actions between Comau Open Controller and the external PC.

Switching from a operative mode to another one does not require turning off the motors. The robot can continue to work

properly and the user only has to communicate to Comau

Open Controller the mode which he wants to use.

In this way it's very easy to create a generic mixed trajectory!

Different operative modalities are provided:

- no commands sent by PC, only measures received by the PC
- target generated by the PC
- position and/or velocity controlled by the PC
- target or current corrected by the PC
- sensor managed

MOVE 1

MOVE 2

MOVE 3

P1

P2

P3

Normal Mode

Open Mode

P5

P4

MOVE 5

MOVE 4
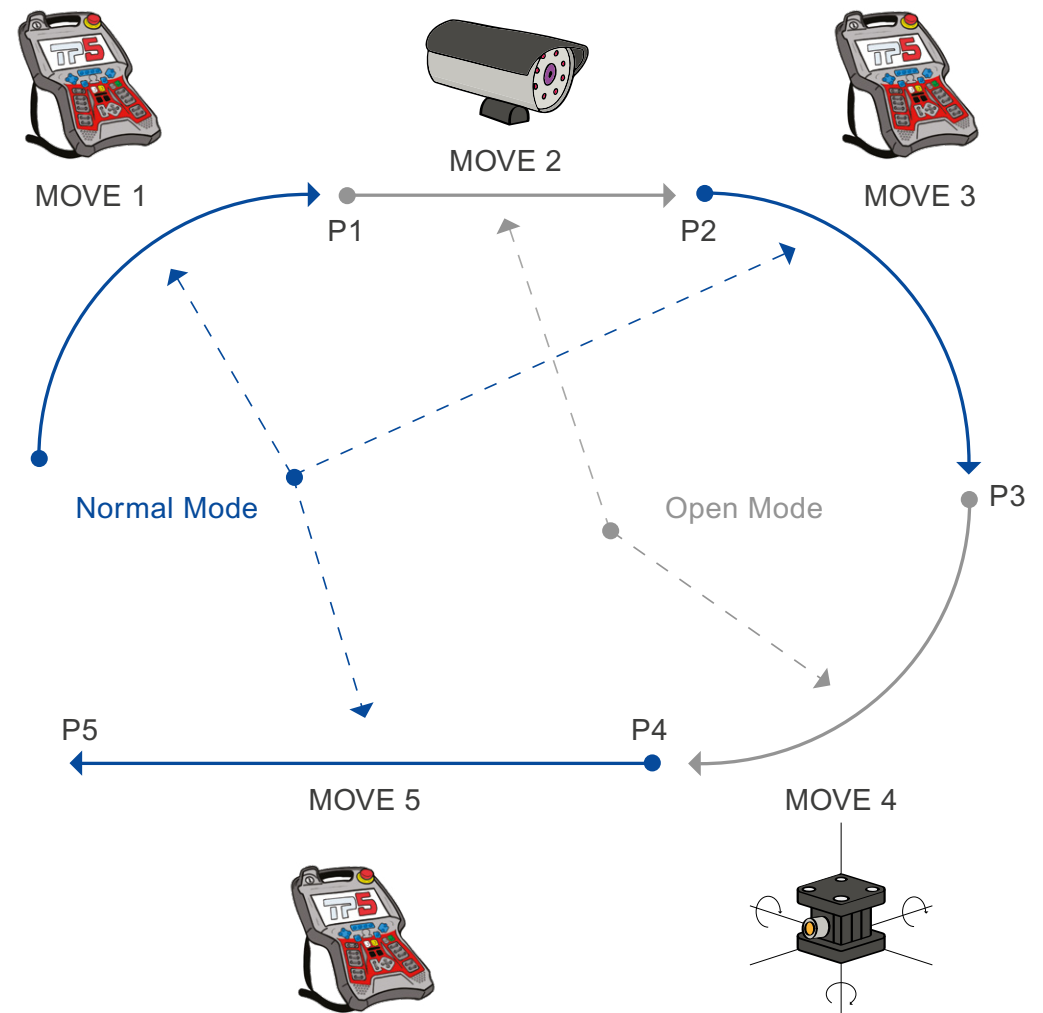
Configuration

Comau Open controller has been conceived as a feature available on all Comau Robot Controller Units without the need of additional Hardware.

Supported Comau Robot Controller:

- C5GPlus Rel 1.0 (IPC model: APC910SC)
- C5GPlus Rel 2.0 (IPC model: APC910DC.SH)
- C5GPlus Rel 3.0 (IPC model: APC3100)
- R1C-6 (IPC model: APC2100)
- S1C-6 (IPC model: APC2100)
- C1C-6 (IPC model: APC2100)

Optionally, it is possible to expand the Comau Robot Controller Internal PC ethernet socket pool by installing an Annex Ethernet Card.

In order to ensure communication stability, proper hardware has to be chosen according to the user's project complexity

Minimum configuration:

- Linux-based RTOS 32/64bit
- Memory: 4+GB RAM (system memory)
- Cpu: 2 GHz dual core processor
- Disk: SSD preferred
- Network: Gigabit Ethernet Interface, direct connection preferred

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