

[7]	PN 301013	05	TCAT 200 THA Workflow SW Architecture and Design
[8]	PN 107568	01	TCAT Hardware Architecture
[9]	PN 300072	07	Spec, Cutfile ASCII Format (CUT)
[10]	PN 300229	02	TCAT Hardware Requirements Spec
[11]	PN 301030	04	TPLAN Platform Software Requirements Specification

TDOC_TCP_SDS_09010

Overview

The software architecture is described, including an overall view, the interfaces, and the flow for end-to-end, cross-module interactions. The design for each module is described, including—as applicable—general items, functionality, components, interfaces, flows, states, algorithms, and dependencies. The service-related modules are also described. Detailed interface tables are provided in the addendum.

TDOC_TCP_SDS_00710

Architecture overview

TTXT_TCP_SDS_05080

Introduction

Commentary: The software provides the overall control system for the TCAT Surgical Assistant (hereon termed TCAT or *the system*), an instrument for assisting total joint replacement procedures in the operating room.

TTXT_TCP_SDS_12430

Hardware components

The control system consists of a PC-based computer connected to a display screen and a read-write transfer media drive. The computer controls the instrument hardware through the EtherCAT bus. The instrument consists of an electro-mechanical arm mounted on top of the base which acts as an elevator for the arm. The system is equipped with a left and a right BMM (Bone Motion Monitor) and a digitizer. Additional peripheral devices include a force sensor, pendant, cutter drive assembly, and irrigation pump.

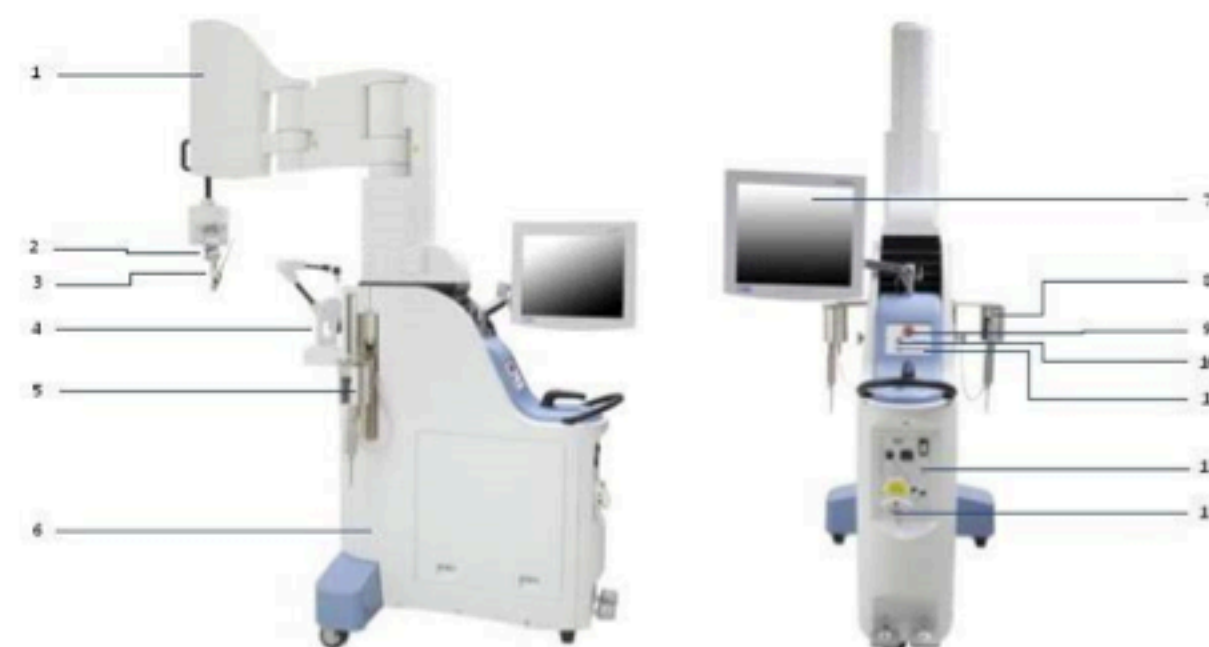
TTXT_TCP_SDS_08240

View of external hardware components

The external hardware components are shown in Figure TFIG_TCP_SDS_09020.

TFIG_TCP_SDS_09020

Figure: External hardware components



- | | |
|---|--|
| <ul style="list-style-type: none"> 1- Manipulator (arm) 2- Force sensor 3- Cutter drive assembly for cutter motor 4- Digitizer 5- BMM (right) 6- Base | <ul style="list-style-type: none"> 7- Monitor 8- BMM (left) 9- Base EPO Button 10- Power enable button 11- Transfer Media slot 12- Pendant Connector (pendant not shown) 13- Irrigation motor |
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TTXT_TCP_SDS_05100

Software categories

There are two categories of software: Platform and Workflow.

Software for the low levels is identical for all application workflows; therefore, it belongs to the Platform category.