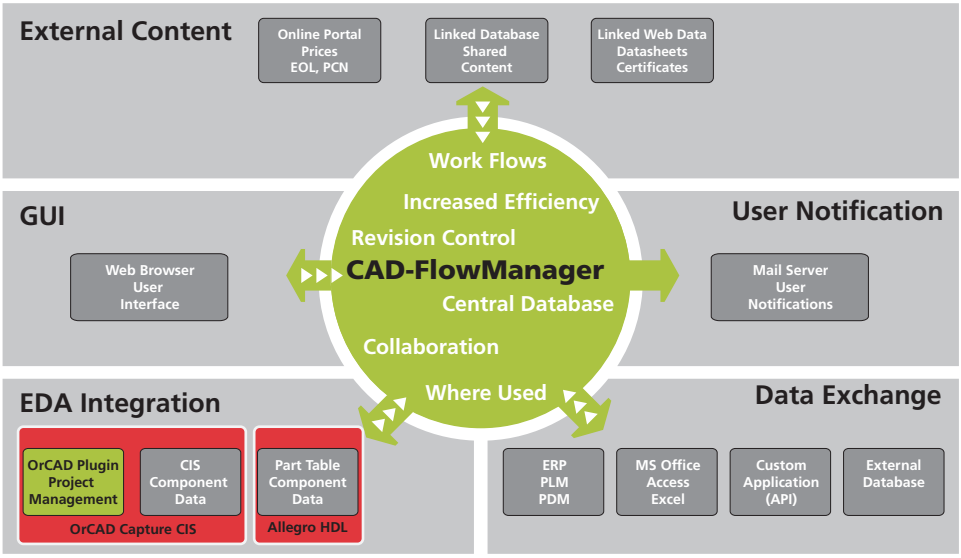
FlowCAD

CAD-FlowManager

Product Description

FlowCAD

CAD-FlowManager



CAD-FlowManager integrates and manages eCAD data within a corporate IT infrastructure

eCAD Library and Data Management

CAD-FlowManager enables sharing information between eCAD and corporate data (i.e. PLM, PDM, ERP) offering benefits for both design engineers and product life-cycle managers. It enables an effective collaboration between them without adding unnecessarily work as engineering overhead.

A clean and centralized eCAD part library saves time during the part selection process for the engineers and it avoids creation of redundant parts. Adding and maintaining new parts over its lifetime might cost 500 to 5000 Euro per part depending on its complexity and the number of people involved in the verification and maintenance process.

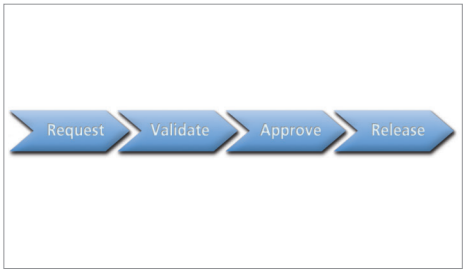
Corporate data access and performing global corporate functions within the OrCAD/Allegro interface improves efficiency and eliminates problems that can arise from managing eCAD data in a local file system. This deep software integration improves team collaboration, data quality, and engineering productivity to increase enterprise efficiency.

CAD-FlowManager automates processes of publishing eCAD design information into corporate data platforms, making a process efficient and consistent. It literally takes just a single mouse click for engineering to provide design intelligence needed to drive decisions relating to procurement, supply chain management, engineering change management and other key areas throughout the product life-cycle.

CAD-FlowManager enriches the eCAD library with critical enterprise data in key areas such as cost, change notifications and availability. This enables design engineers to make better part selections from within the eCAD tools and reducing costly rework later in the development process.

BOM information is critical to managing the success of a new product. Without current and accurate BOM information driving the PLM system, it's impossible to make optimal purchasing and other choices. CAD-FlowManager provides direct integration with the Cadence design environments to extract relevant data that will enable collaboration, increase visibility and drive better product decisions.

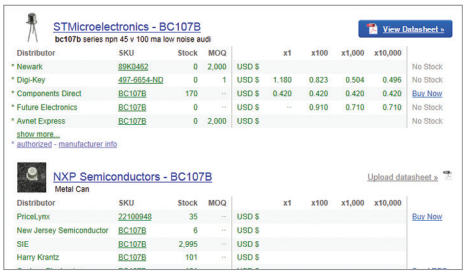
CAD-FlowManager offers a web based environment for easy deployment and configuration to your engineering and business process.



Work flow for team collaboration

CAD-FlowManager

CAD-FlowManager is a modular and pre-configured solution with a very deep integration into Cadence PCB Design tools. After initial configuration, a custom library structure and individual work flows are set up for all users with their roles in the company. Defined work flows (i.e. part request, EOL-impact, …) enable easy team collaboration also with external users outside the eCAD department.
It can work as a standalone solution, as well as a highly automated integration of Cadence PCB software (OrCAD, Allegro) with other corporate data systems and company work flows.



Search suggests alternate part information

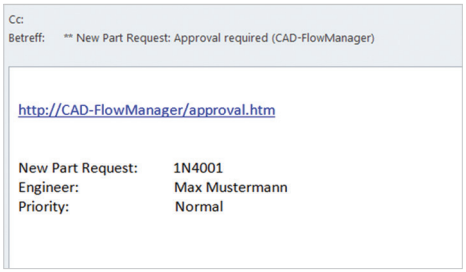
External Content

External content from part supplier platforms (i.e. Octopart, Farnell, …) offers parameterized search of electrical components. When using a corporate login, real prices and lead times are available as well as other meta data. CAD-FlowManager enables searching such platforms or other databases within the OrCAD schematic entry tool. Engineers can quickly make their part decision based on online data. In one search request the engineer gets a comparison of alternate parts from many manufacturers with certificates, data sheets, availability from multiple suppliers or even personalized prices or EOL forecasts. Just one mouse click will copy all online data and start a new part request flow.


Supported web browser

User Interface (GUI)

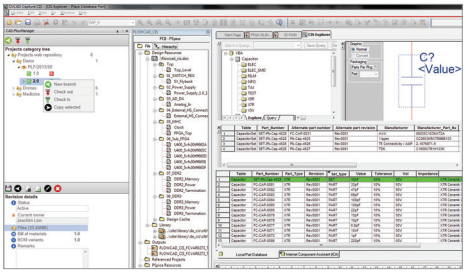
Only a web browser is required to access the application. The application is completely web based. After login the user will see CAD-FlowManager content in the browser depending on his assigned user rights. No installation is required on the client side, just a click on the favorite link to open the application. The application supports dynamic web pages to display data without reloading a complete page again.
The same application can run directly within the user interface of OrCAD Capture CIS. Engineers do not have to leave their design environment and do not have to launch a browser at all.



Email notification with direct link to approval page

User Notification

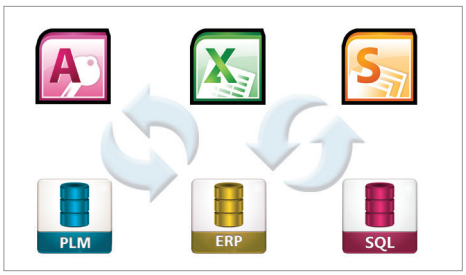
This mechanism sends all information and alerts necessary to inform users to take actions in CAD-FlowManager. Notifications are fully customizable and allow organizing content and layout, depending on corporate communication standards.
Automated user notifications will relieve users of keeping regular attention on ongoing flows. Each user will be informed about events that concern him. This allows fluent process flow without unnecessary delays due to manual status checking. Content of email notifications can be widely customized.



CAD-FlowManager within OrCAD Capture CIS

Deep EDA-Tool Integration

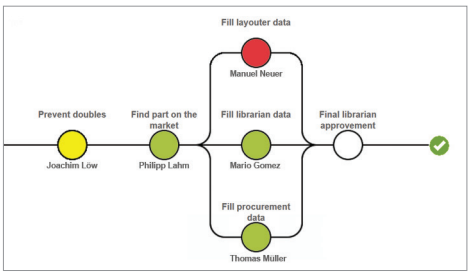
A very deep integration with Cadence software is important to offer a smooth flow and all the benefits. CAD-FlowManager uses Cadence's scripting languages TCL and SKILL for the integration. CAD-FlowManager provides the content for the eCAD library. The update can be done automatically by a script or manually. The library structure will be directly written into the central eCAD-library (CIS/PTF).
Engineers using OrCAD Capture CIS can perform all operations within the Capture GUI. No web browser has to be launched. The command to Check Out a project will open the design in directly Capture CIS.



Data exchange with external sources

External Data Exchange

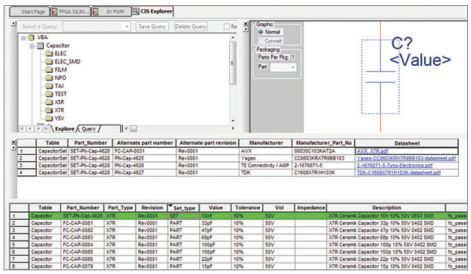
Within a company there might be several external sources for information which need to be synchronized. CAD-FlowManager is able to connect to these sources and exchange data. CAD-FlowManager can generate reports or document sets and save them in a defined directory. But external tools can also use the API to trigger from the outside the generation of data and its transmission.
The supported types of integration are Microsoft products like Excel, Access or SharePoint. Other types of integration are interfaces to ERP, PDM, and PLM Systems or an external data base like SQL.



Library flow for add new part

New Part / Change Request Flow with Escalation

Introducing a new part or a part change requires different tasks by several users. For example when an engineer wants to introduce a new part, it might make sense, that the librarian first verifies, if such a part already exists. If not, procurement, manufacturing and test department have to approve the introduction. After the approval the librarian will create the symbol, footprint and add all meta data before the part is finally released. Such new part request flow might have some sequential tasks and also parallel tasks, where some person are working at the same time. CAD-FlowManager can set up customized work flows for different component categories and send out user notifications, when they have to do a task or if the flow is blocked.



Definition of an approved SET of parts for assembly

Definition of SET and GEN for Alternate Parts

Many electronic parts are manufactured by different manufacturers to provide the ability of a second source. When selecting a part, the engineer can decide if he wants to use exactly this part from one specific manufacturer. But if he does not care which manufacturer is used, he can create a generic (GEN) part for i.e. a diode "1N4001". In this case the purchasing or the assembly house can use any vendor of this diode. But if there are only 3 out of 5 parts from different vendors applicable for one design, the engineer can create a SET of approved parts. 3 exact manufacture parts will be included in the SET and only one out of these approved 3 parts can be used for assembly.

	Placed part number	Placed part revision	Reference number	Final part number
⛔	FC-CAP-0001	Rev0001	C842	FC-CAP-0001
⛔	FC-CAP-0001	Rev0001	C843	FC-CAP-0001
⚠	FC-CAP-0005	Rev0001	C802	FC-CAP-0005
⚠	FC-CAP-0005	Rev0001	C806	FC-CAP-0005
⚠	FC-CAP-0005	Rev0001	C809	FC-CAP-0005
⚠	FC-CAP-0005	Rev0001	C813	FC-CAP-0005
	FC-CAP-0009	Rev0001	C54	FC-CAP-0009
	FC-CAP-0009	Rev0001	C55	FC-CAP-0009
	FC-CAP-0009	Rev0001	C68	FC-CAP-0009
	FC-CAP-0011	Rev0001	C840	FC-CAP-0011
	FC-CAP-0011	Rev0001	C841	FC-CAP-0011
	FC-CAP-0016	Rev0001	C216	FC-CAP-0016
	FC-CAP-0016	Rev0001	C217	FC-CAP-0016
	FC-CAP-0016	Rev0001	C218	FC-CAP-0016
	FC-CAP-0016	Rev0001	C219	FC-CAP-0016
	FC-CAP-0016	Rev0001	C220	FC-CAP-0016

Bill of Material with SET and GEN alternative parts

BOM Management – Assembly Variants

A Bill of Material (BOM) for an electronic design might contain precise information of the component to be used. But it is also possible, that some generic components are described just with some minimal attributes like: 10Ω, 5%, 0603 and an approved SET of manufacturers. The BOM will have in such case multiple entries for one part.
The other possibility is the placement variants. In these cases the designer decides, that some components will not be installed or might have a different value compared to the core design. CAD-FlowManager understands the variant definition inside Cadence PCB tools and creates for each variant the appropriate BOM.

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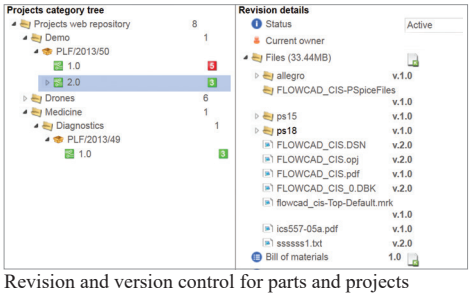
"Where used" report result

Project number	Project Description	Project Revision	Variant	Reference number
PLF/2013/50	FlowCAD demo project	1.0	Core	C54
PLF/2013/50	FlowCAD demo project	1.0	Core	C55
PLF/2013/50	FlowCAD demo project	1.0	Core	C68
PLF/2013/50	FlowCAD demo project	1.0	FCVAR0019	C54
PLF/2013/50	FlowCAD demo project	1.0	FCVAR0019	C55
PLF/2013/50	FlowCAD demo project	1.0	FCVAR0019	C68
PLF/2013/50	FlowCAD demo project	1.0	FCVAR0273	C54
PLF/2013/50	FlowCAD demo project	1.0	FCVAR0273	C55
PLF/2013/50	FlowCAD demo project	1.0	FCVAR0273	C68
PLF/2013/50	FlowCAD demo project	2.0	Core	C54
PLF/2013/50	FlowCAD demo project	2.0	Core	C55
PLF/2013/50	FlowCAD demo project	2.0	Core	C68
PLF/2013/50	FlowCAD demo project	2.0	FCVAR0019	C54
PLF/2013/50	FlowCAD demo project	2.0	FCVAR0019	C55
PLF/2013/50	FlowCAD demo project	2.0	FCVAR0019	C68

Listing of projects, where a part was used

Traceability – "Where Used"

Manufacturers are changing electronic parts during their lifetime. If a change in a Product Change Notification (PCN) has some implication to the designs where the part was used, some engineering changes are required. To trace back, where a part was used, each project has an associated bill of material with the different revisions of that part. CAD-FlowManager will scan the BOM and to show affected designs.
If a part enters the End Of Life (EOL) status, CAD-FlowManager will inform the designer, that the part will be or is already discontinued. Designs still in production need to be redesigned. The tool allows early planning of redesigns.



Revision and version control for parts and projects

Design Check IN / OUT – Revision Control

If you're working in a collaborative environment, you can check projects in and out from local and remote servers. Checking out a project is the equivalent of declaring "I'm working on this file now - don't touch it!" When a project is checked out, the name of the person who checked out the project is displayed in the project panel, along with a red check mark (if a team member checked out the project) or green check mark (if you checked out the project) next to the project's name. Checking in a project makes the project available for other team members to check out and edit. When you check in a project after editing it, your local version becomes read-only and a lock symbol appears beside the file in the project panel to prevent you from making unwanted changes.

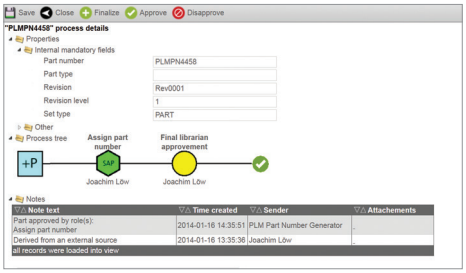
"User reports history" report's parameters input

▽△ Report type	▽△ Report parameters
Single project BOM	PREV = 1.0; PRN = PLF/2013/50; SELT = 2;
Import details	ImportTime = 2014-01-21 13:25:21.003;
Import details	ImportTime = 2014-01-21 13:21:21.397;
Expanded BOM	PREV = 1.0; PRN = PLF/2013/50; SELT = 2; VARIANT
Import details	ImportTime = 2014-01-10 13:41:25.514;
Part lifetime	PN = NEWSAPNUM123;
Event log	FROM = 2013-11-01; OP1 = 1; OP2 = 1; OP3 = 1; OP4
Part revisions	PN = NEWSAPNUM123;
Part lifetime	PN = NEWSAPNUM123;
Where used	PN = FC-CAP-0009; REV = Rev0001;
Import details	ImportTime = 2013-12-03 10:58:50.396;
Part lifetime	PN = FC-CAP-0019;

Report history with list of parameters

Reports and Report History

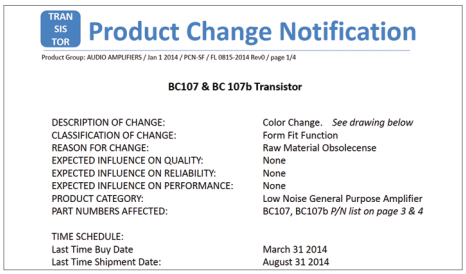
CAD-FlowManager comes with a number of predefined reports, which will most likely be used by all customers. Additional custom reports can be generated by forms or by certain filter setting. These reports will be remembered in the user's report history and can be quickly re-run later again with the same settings. All reports can be exported as tab or comma separates files to external tools (like Excel, Word, ERP, PLM, ...). Reports can be generated manually or externally by using the API from the outside.
Some reports are offered based on the context and are easily available by a right mouse button selection list.



Synchronization of eCAD and corporate data

ERP / PLM Integration of Corporate Data

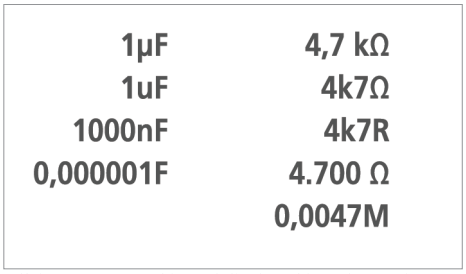
In small companies CAD-FlowManager can work as a stand alone solution, but when there is a ERP or PLM system installed it will work as a subordinate. Through direct access to the MSSQL server or by using APIs the external system can control the data and the eCAD library. In this case CAD-FlowManager is working like a preprocessor and eCAD adapter.
Tool integration into Cadence schematic, PCB Editor and library will still be handled by CAD-FlowManager, because it is easy to customize and flexible for changes required from the eCAD side. Data will be offered to the external system in a defined way, which will not change. After the initial setup the interface to the PLM / ERP system requires no more changes.



Product Change Notification with EOL information

EOL / PCN Online Update and Work Flow

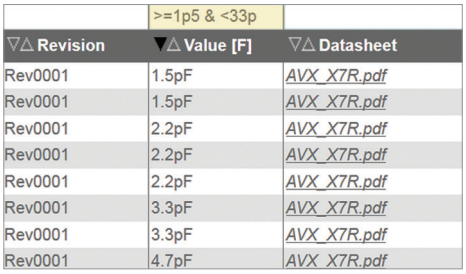
Manufacturer of electronic components will provide Product Change Notifications (PCN) for each change in the product. No matter if it is just a different color, changed electrical specifications due to a die shrink, or announcing the End of Life (EOL) process with dates for last order date and last shipment date.
CAD-FlowManager can read in these PCNs from part portals or distributor platforms. This information will be compared with the part library and changes will initiate a part change flow. So a user can look at the effected parts and accept the change or start the end of life flow for all effected designs.



All formats are read in and displayed in only one format

Smart Units

Meta data for electronic components comes from various sources and users. There is no standard for the data formats, so the data looks very different for the "same" value in different applications. CAD-FlowManager can import many different types of syntax (see picture on the left). The smart unit function will save data in a standardized way, so search functions will work through all data entries. The user can define his syntax, how to display the values for certain components (i.e. 4k7R). This display format will show up in all his views. Smart units are also supported in advanced filtering.

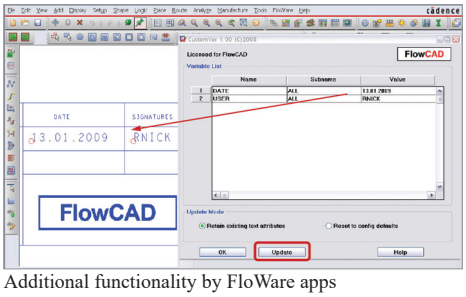


	>=1p5 & <33p	
▽△ Revision	▼△ Value [F]	▽△ Datasheet
Rev0001	1.5pF	AVX_X7R.pdf
Rev0001	1.5pF	AVX_X7R.pdf
Rev0001	2.2pF	AVX_X7R.pdf
Rev0001	2.2pF	AVX_X7R.pdf
Rev0001	2.2pF	AVX_X7R.pdf
Rev0001	3.3pF	AVX_X7R.pdf
Rev0001	3.3pF	AVX_X7R.pdf
Rev0001	4.7pF	AVX_X7R.pdf

Wild-cards and logic operators allow fast filtering

Advanced Filtering

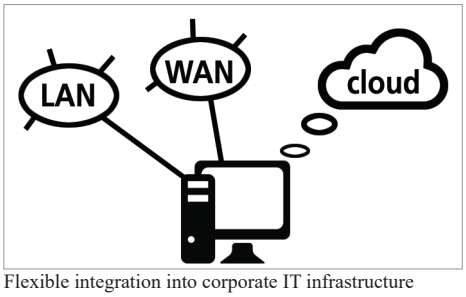
Usability and fast reaction time are key features to improve the user acceptance of a data base application. CAD-FlowManager provides a fast and intelligent filtering. To search in large table the right values, it is possible to use wild-cards and logic operators to describe the range of data. Values are stored in the database as clean numbers, but for search the user can type in his preferred syntax. Smart units will ensure that the right value is found. While typing the auto-selection drop down list will provide a list of matches, which will narrow down the results dynamically. Just typing a few characters of the unique string will offer the correct search result.



Additional functionality by FloWare apps

FloWare Module Integration

FloWare modules are applications to collect or manipulate meta data within the Cadence PCB tools. Corporate requirements might need to fill data in the title block of each schematic or PCB sheet. FloWare modules can get this data from CAD-FlowManager and fill in these values. Another FloWare application is able to prepare document sets for production, assembly and test following the corporate standard. This might include Gerber files, pick and place lists, as well as DRC and design rule reports. After running through the output procedure all documents will follow a naming rule and will be put together as document sets. These sets, will be checked in into CAD-FlowManager.



Flexible integration into corporate IT infrastructure

IT Implementation

CAD-FlowManager will be installed on a Windows Server 2008 Standard Edition (or higher) and uses the MSSQL database. The server can be installed in the LAN, WAN or in customer's private cloud. The deep tool implementation is done with Cadence scripting languages TCL and SKILL at the central location CDS_SITE. The web based thin client / fat server topology does not need a client installation. User access supports active directory for fast and secure login.
A short setup time is required for this "out of the box" installation to configure the server, library, work flows and user / role settings. FlowCAD has some migration tools, to prepare existing data for a centralized eCAD library.

FlowCAD

FlowCAD (Deutschland)

Mozartstr. 2
85622 Feldkirchen bei München
Germany

T +49 89 45637-770
F +49 89 45637-790

info@FlowCAD.de
www.FlowCAD.de

FlowCAD (Schweiz)

Hintermättlistr. 1
5506 Mägenwil (Aargau)
Switzerland

T +41 56 485 91 91
F +41 56 485 91 95

info@FlowCAD.ch
www.FlowCAD.ch

FlowCAD (Polska)

ul. Sąsiedzka 2A
80-298 Gdańsk
Poland

T +48 58 732 74 77
F +48 58 732 72 37

info@FlowCAD.pl
www.FlowCAD.pl