

DATA MANAGEMENT SYSTEM AND PROCESS

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FIELD OF THE INVENTION

This invention is related to a Computer Integrated Design Control System and Method for concurrent engineering, and particularly to process management in a concurrent engineering environment useful in connection with the design, development and manufacturing of complex electronic machines such as computer systems and their complex electronic parts.

RELATED APPLICATIONS

The preferred embodiment of our claimed invention is described in detail herein. Our preferred embodiment may desirably interact with other inventions which may be considered related applications filed concurrently herewith, having inventors in common with this our preferred embodiment of this invention.

For convenience of understanding, these other applications describe various systems, methods and processes for data management particularly suited for use with this invention, our Data Management System and Processes.

The related applications include the application entitled Data Management System and Method for Concurrent Engineering which provides greater detail about our Aggregation Manager for a Data Management system, and Data Management System for Concurrent Engineering, and Data Management System for Problems, Releases and Parts for Computer Integrated Design Control which describes a method for managing problems, releases and multiple releases, and Data Management System having Shared Libraries.

All of these related applications are filed concurrently herewith, and their disclosures are incorporated herein by this reference. All are commonly assigned to International Business Machines Corporation, Armonk, N.Y.

GLOSSARY OF TERMS

While dictionary meanings are also implied by certain terms used here, the following glossary of some terms may be useful.

AFS	Andrew File System - File Management System developed by Transarc Inc. and used on Unix/AIX Networks.
API	Application Program(ming) Interface.
ASC	Accredited Standards Committee (ANSI)

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BOM	Bill of Materials
CIM	Computer Integrated Manufacturing
CR	Control Repository
5 CRC	Cyclic Redundancy Check
CLSI Compiler	VHDL Analyzer developed by Compass Design Systems
DCS	Design Control System. Our Design Control System incorporates Data Management System processes, including interactive data management systems which supply processes which may be applicable in general data management systems, such as a process manager, a promotion manager, a lock manager, a release manager, and aggregation manager and the other processes we describe herein as part of a Computer Integrated Design Control System and, where the context applies, Data Management System, is a Data Management System functioning within an overall integrated design control system.
15 DILP	Designer Initiated Library Process
DM	Data Manager or Data Management
DMCU	Data Management Control Utilities
DMS	Data Management System
DR	Data Repository
20 EC	Engineering Change
EDA	Electronic Design Automation
GUI	Graphical User Interface
PDM	Product Data Management
PIM	Product Information Management
PN	Part Number
25 RAS	Random Access Storage
sim	static inline memory
tape-out	Delivery of a coherent set of design data to manufacturing. Also known as Release Internal Tape (RIT) within IBM.
TDM	the Cadence Team Design Manager (most currently Version 4.4)
30 VHDL	Very High-Level Design Language - A high level language comprised of standards supported by IEEE and the EDA industry. The language is widely used in the electronics and computer industry and by the military as an alternative to Verilog and ADA, other high level computer coding languages.

BACKGROUND OF THE INVENTION

Historically there has been a division between data management and process management. Many solutions have been designed to either manage pieces of data in a repository or navigate data through a manufacturing or design process. In environments where large quantities of data need to be subjected to some type of process, qualities from both solutions are required. For example, a typical data management system may permit data to be moved from one repository to another. Once the data arrives, a different system is employed to initiate the data into a process flow. In addition, many solutions fail to record the results of the process into the data management system for direct association with the data. These systems lack the capability to audit the data against prescribed criteria or ensure that data integrity is maintained during and after process execution in a design control system for concurrent engineering.

In the article entitled "Beyond EDA (electronic design automation)", published in Electronic Business Vol.19, No.6 June 1993 P42-46, 48, it was noted that while billions of dollars have been spent over the past (then and still last) five years for electronic design automation systems (EDA) and software to help companies cut their design cycle, a huge gulf remains between design and manufacturing. To eliminate the gulf and thus truly comply with the commandments, companies are extending the concept of concurrent engineering to enterprise wide computing. The concept, which calls for integrating all the disciplines from design to manufacturing is becoming the business model of the 1990s. Achieving an enterprise wide vision requires tying together