



How to Improve Multisite Design Team Productivity in Uncertain Times

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In the last few months, we have heard of several semiconductor companies reducing or planning to reduce their workforces. Many organizations are uncertain about the times ahead; their first response is to cut expenses. Semiconductor companies have to determine ways of managing their resources efficiently and at the same time ensure that they are able to continue with research and development. They also have to make sure that all investments, whether in infrastructure or head count, have a larger bang for the buck.

One early cost-cutting measure has been to invest in design centers half way around world, mainly in Eastern Europe and Asian countries. Previously, a majority of the low-cost design centers focused on smaller isolated projects, but many are now being asked to take on more responsibilities and to engage in larger projects. Design data for the projects needs to be shared between the sites in real time, and simply doing an RSYNC or FTP overnight does not fit the bill. Knowing the importance of efficient communication, design managers and CAD teams are refining procedures and deploying tools to improve communication and collaboration. The solutions need to be scalable and reliable and yet easy to use and administer.

While companies are solving their multisite development issues, they are also trying to put in place formal processes to help them reduce re-spins and manage development. Large costs are associated with the manufacturing of integrated circuits (ICs) and companies with financial constraints cannot afford to operate in a trial-and-error mode. Each member of a design or CAD team has to be confident that the data being passed from one engineer to another is complete and correct data. Without a reliable method for design data sharing, verification may be done using an incomplete specification or layout engineers may create a layout from the wrong version of the schematic. Even if the problem is caught before tapeout, several engineering hours are wasted. Design teams must roll out a solution that will enforce a methodology that ensures engineers access to exactly the right data during each of the several stages in the design process.

Improved communication and methodology processes can be handled by implementing a wide variety of tools. Instant messaging and Internet telephony applications, such as SKYPE, can help manage communication between users. Often designers have questions/ comments regarding the project and being able to get answers immediately by pinging their coworkers can result in a quick turnaround. Web conferencing systems, such as WebEx, also can help with weekly conference calls and can assure that everybody views design data at the same time.

The next problem to tackle is data collaboration and project management. A very important key to the successful and timely completion of a design project is a design data management (DDM) system. A DDM system helps track design changes and provides a platform for efficient collaboration, providing details such as which user modified what objects or which revisions are used in a certain milestone of the project. When a user modifies a design object at one site, any user at any site can get these changes without having to wait for a nightly or periodic synchronization. Every user in the project is aware of all changes made. A DDM system also can connect to an issue tracking system where design changes correlate to a feature or a bug being worked on. A system must be deployed to track the enhancement requests and issues found in the design during the lifecycle of a project. Open source web-based solutions, such as TRAC or Bugzilla, come to the rescue. These applications will help keep track of the issues and hold a user or group responsible for solving them.

All of the above-mentioned solutions can only work if there is “encouragement” from management and a workflow methodology in place. Designers should know when to promote their designs to the next stage of the project and how issues should be assigned. A balance must be reached so that too many rules do not prevent engineers from adopting such solutions. Engineers already have to work with many tools and adding additional tools and hurdles can cause them either to avoid the new flow or to slow the process down. Project managers and the CAD team must work together with the engineers on a regular basis to recalibrate the process, if needed. Resource considerations are very important when deploying these solutions. Since the support teams, IT and CAD, are condensed, the applications should be easy to setup, administer and learn.

As design teams are shrinking, management has to focus on maximizing productivity. The solutions discussed here are fairly simple to implement and produce a strong return on investment, reducing telephony and travel costs and improving productivity through efficient collaboration. At ClioSoft, we have seen many organizations implement our solution for their design teams primarily to solve the two issues of collaborating between sites and streamlining the design process. Even as market conditions head south, we have seen a growth in customer enquiries, evaluations and purchases. Businesses that had employed our DDM solution in select groups are now deploying across all design groups in the enterprise. Our customers have concluded that with a modest investment in collaboration solutions they can effectively take on the challenges of a globally distributed workforce in these tough economic conditions.