valor
Process Preparation
Product data cannot be transferred directly to the line.

Valor Process Preparation generates manufacturing execution instructions for automated and manual stations, including:

- BOM validation
- Stencil design
- Line balancing
- SMT, Test and Inspection programming
- Generation of documentation / work instructions
A complete **ANALYSIS, MODELING** and **SIMULATION** environment for maximizing the efficiency of the design-to-manufacturing flow

**Accelerate NPI**
- Increase engineering efficiency by using a single tool for all process engineering tasks
- Eliminate redundant preparation work with Learning Libraries (machine shapes, rotation etc.)
- Increase efficiency through automation and use of templates (for work instructions, data import parsers, etc.)

**Increase line utilization**
- Maximize off-line preparation to eliminate on-line trial and error delays
A complete **ANALYSIS, MODELING** and **SIMULATION** environment for maximizing the efficiency of the design-to-manufacturing flow

**Preserve manufacturing know-how**

- Consolidate organizational best-practice flows
- Centralized part libraries incl. rotation neutralization and machine shapes
- Custom data preparation flows can be defined, enforced, and re-used

**Product portability**

- Leverage ODB++ to seamlessly move production between lines and factories – eliminate engineering time and increase quality of end product
Customer testimonials

- Reduced line setup time by 70%
- Machine uptime increased by 50%
- Changeover time reduced from 50 minutes to 13 minutes
- Annual savings of $1.4M

24h NPI Express – Using Valor tools in Germany to prepare work orders for production in the US – saving time and implementing “follow the sun” methodology

Time from BOM/AVL to production-ready programs and documentation reduced from 3-5 days to 1-2 days
Building the digital product model

**DIGITAL PRODUCT MODEL**
- BOM
- CAD
- Accurate shapes
- Supply form
- Panel design
- Product summary
- Virtual documentation
- Schematic data
- Work instructions
- Stencil
- SMT
- Test

**WHAT?**
- System Design
- Schematic Design
- Floorplanning
- Layout & Routing
- Product-centric NPI
- NPI: Fabrication Process
- Fabrication Execution
- NPI: Assembly / Test Process
- Assembly / Test Execution
- Machine programming

**HOW?**

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ERP

Valor Parts Library
Harmonized process through a single engineering tool

BEFORE: Product model created multiple times

AFTER: Time-to-production reduced by more than 20%
Single data model covers multiple processes and vendor platforms

Hierarchical view of assemblies, including support for multiple instances

Machine shapes can be generated on demand

Customizable workflows allow multiple users to share projects and track their status
Optimize SMT program portability with patented machine shape auto-generation

- Part libraries can be created for each machine directly from the Master Parts Library
- Users can create/modify custom parameters to enhance part/shape data
- Native machine programs can also be imported and quickly converted into alternate machine formats
Enable simple work-order portability

- Single product model can drive all manufacturing of a product worldwide
- Product NPI tasks can be done once at corp. competence centers
- Only process NPI needs to be repeated at each mfg. environment.
Valor Parts Library (VPL)

- ISO9001-certified library covering over 35 million part numbers
  - Accurate shape data
  - Pin contact area
  - Component classification (JEDEC)
- Enables accurate virtual-prototype build

Shapes of alternate parts in the AVL can be easily compared for inconsistencies
(example: the parts above provide the same electrical function, but require different pad layouts)
“Virtual Sticky Tape” – Improve SMT productivity with offline placement simulation

- CAD orientation – Polarity 180°
- Incorrect placement
- Incorrect shape
- Rotation neutralized and corrected
- Placement corrected
- Correct shape selected
Documentation creation

- Built-in and user-defined templates for static and interactive documentation
- Include any design, product model, SMT, Test, and other production information
- Can include embedded images and files (e.g. JPG, PDF)
Complete testability analysis (DFT) of PCAs

- Identification of high risk areas
- Feedback to design about inaccessible points
- Comprehensive yield analysis to quantify testability
Tester and inspection programming

- Automated test probe selection and positioning based on available access to each electrical node
- Full reporting of placements including reason codes for inaccessible points
- Leading industry tester formats supported
- AOI & AXI tester programming
- Programs take into account the location of AOI/AXI machines on the line and components that should be placed up to that point
Stencil design

- Automatically create stencils from product model
- Customizable rules and aperture properties
- Output to ODB++ or Gerber 274X
Value-Add Services

❖ Valor Process Preparation deployment  service
  ➢ Lean Process consulting - Get the tools implemented and fine-tuned to YOUR environment
  ➢ Customization and fine tuning of machine shape auto-generation rules

❖ Process automation
  ➢ Leverage Valor Process Preparation’s comprehensive API to streamline data flow from design to manufacturing

❖ Manufacturing Cost Simulator & Quote Builder
  ➢ Uses data available from Valor Process Prep. to generate accurate manufacturing cost simulation
  ➢ Based on BOM, factory cost model and design complexity
  ➢ Optional: integration to 3rd-party component cost providers (e.g. SiliconExpert, DigiKey)
# SupportNet - Open to all customers under support:
- TechNotes
- Best Practices
- Tutorials
- Quick Tips
- Software distribution portal
- Marketing Materials
- Support requests from customers

Mentor IDEAS:
- Easy way to provide feedback and improvement suggestions
- Vote to affect the priority of proposed enhancements
Virtual lab

http://tinyurl.com/ValorPPlab
Increase manufacturing planning efficiency by leveraging Teamcenter Manufacturing as the overall process repository

Prepare process plans for New product Introduction (NPI)

Identify the impact of design changes on box build lines

Deliver updated work instructions
BUSINESS CHALLENGE

- Improve NPI time and cost
- Standardize engineering flow
- Improve global manufacturing flexibility

BUSINESS RESULTS

- 40% ENGINEERING TIME SAVED
- 2X FASTER NPI
- $0.4M ANNUAL SAVING
Thank You