

INTEGRATED DIGITAL FACTORY



The Next Great Leap in Manufacturing ...

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LOGIC DESIGN
corporation

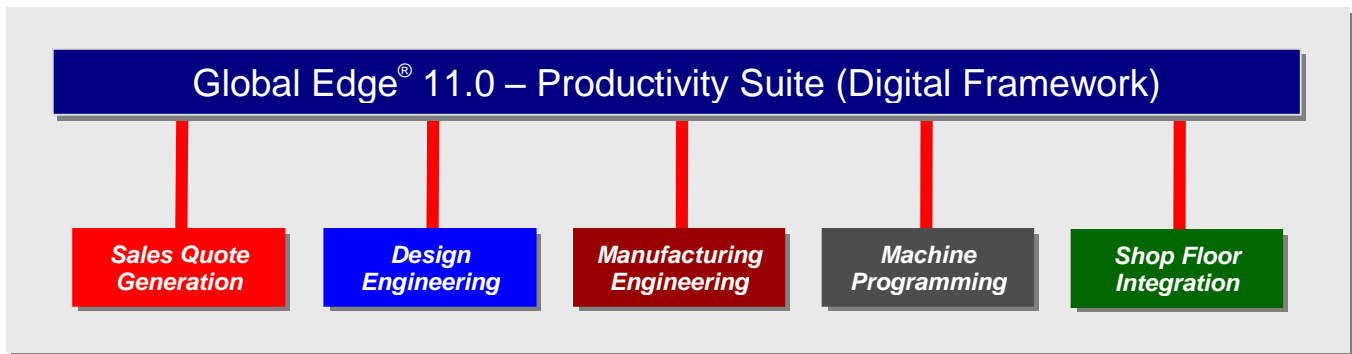
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INTEGRATED DIGITAL FACTORY

The **"INTEGRATED DIGITAL FACTORY"** is a new service provided by Logic Design Corporation that helps manufacturing companies save thousands of hours per year by reducing and eliminating time consuming tasks associated with the engineering and manufacturing workflow process.

The **INTEGRATED DIGITAL FACTORY** utilizes the **Global Edge® 11.0 – Productivity Suite** software as a digital framework for integrating multiple technologies from Sales, to Engineering, to Manufacturing, to ERP and the Shop Floor to provide an innovative system that:

- **Makes Your Company More Competitive in Global Marketplace**
- **Significantly Increases Capabilities without Adding Personnel**
- **Allows Your Company to Offer More Product Options**
- **Provides Greater Flexibility & Responsiveness in Engineering & Manufacturing**
- **Reduces / Eliminates Engineering Clerical & Shop Floor Programming Time**
- **Brings Economy of Scale to Small / Short Production Runs**
- **Helps Reduce Costs**
- **Delivers Significant, Rapid Return On Investment**



Integrate Multiple Technologies to Maximize Shop Floor Production

Integrated Digital Connections

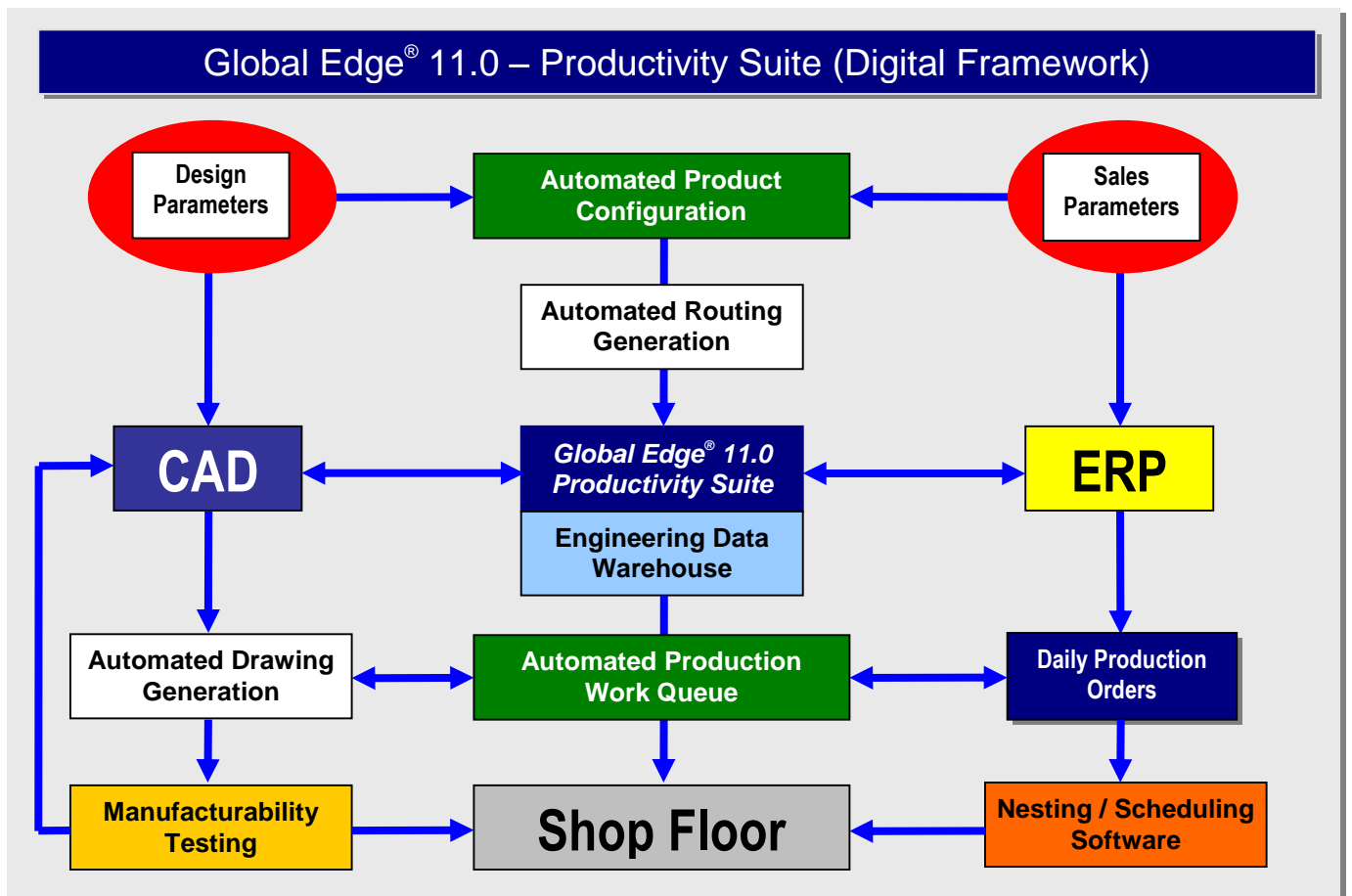
- **Provides “Engineering Data Warehouse” to Serve as Central Data Share Point**
- **Adapts to Existing Software and Hardware Technologies:**
 - **CAD / ERP / Legacy Software**
 - **PDM / PLM Document Management Systems**
 - **Customer Web Portal**
 - **Laser Cutters**
 - **Turret Presses**
 - **Press Brakes**
 - **Panel Benders**

Smarter Software for Smarter Business

INTEGRATED DIGITAL FACTORY

The **INTEGRATED DIGITAL FACTORY** includes the **Global Edge® 11.0 – Productivity Suite** software that provides a modular system that focuses on the 10 Key Potential Improvement Areas that include:

- **Standard Folding Language™ / Automated Press Brake Program Generation**
- **Manufacturability Testing**
- **Advanced Bill of Materials / Routing Management**
- **Automated Product Configuration / Drawing Generation**
- **Automated Drawing Importation / Routing Generation**
- **Automated Sales Quote Generation**
- **CAD / ERP Integration**
- **Integrated Document Management**
- **Automated Production Work Queue / Workflow**
- **Integrated Manufacturing**



Global Edge[®] 11.0 – Productivity Suite

The Power to Succeed in a Global Market

The Next Great Leap in Manufacturing ...

The **Global Edge[®] 11.0 – Productivity Suite** is an automated Engineering and Manufacturing Workflow System that provides manufacturing companies with **“The Next Great Leap in Manufacturing ...”**. **Global Edge** bridges the gap between engineering and manufacturing by integrating information between the two departments and automates many of the manual workflow tasks normally associated with the engineering and manufacturing workflow process.

Global Edge automates and significantly speeds up the time it normally takes to design, quote and configure custom products and eliminates the manual programming of modern shop floor equipment such as robotic sheet metal folding machines. **Global Edge** incorporates innovative software technology that helps reduce the cost of short-run products to that of mass produced products by reducing labor intensive design and engineering tasks from hours to seconds.



The **Global Edge[®] 11.0 – Productivity Suite** provides an **“INTEGRATED DIGITAL FACTORY”** with an **“Out-of-the-Box”** software solution at an affordable price. The **Global Edge[®] 11.0 – Productivity Suite** software has been successfully implemented at manufacturing companies that range from small to Fortune 500 and includes the following functionality:

- ▶ **Standard Folding Language™ / Automated Press Brake Program Generation**
- ▶ **Manufacturability Testing**
- ▶ **Advanced Bill of Materials / Routing Management**
- ▶ **Automated Product Configuration / Drawing Generation**
- ▶ **Automated Drawing Importation / Routing Generation**
- ▶ **Automated Sales Quote Generation**
- ▶ **CAD / ERP Integration**
- ▶ **Integrated Document Management**
- ▶ **Automated Production Work Queue / Workflow**
- ▶ **Integrated Manufacturing**

Global Edge® 11.0 – Productivity Suite

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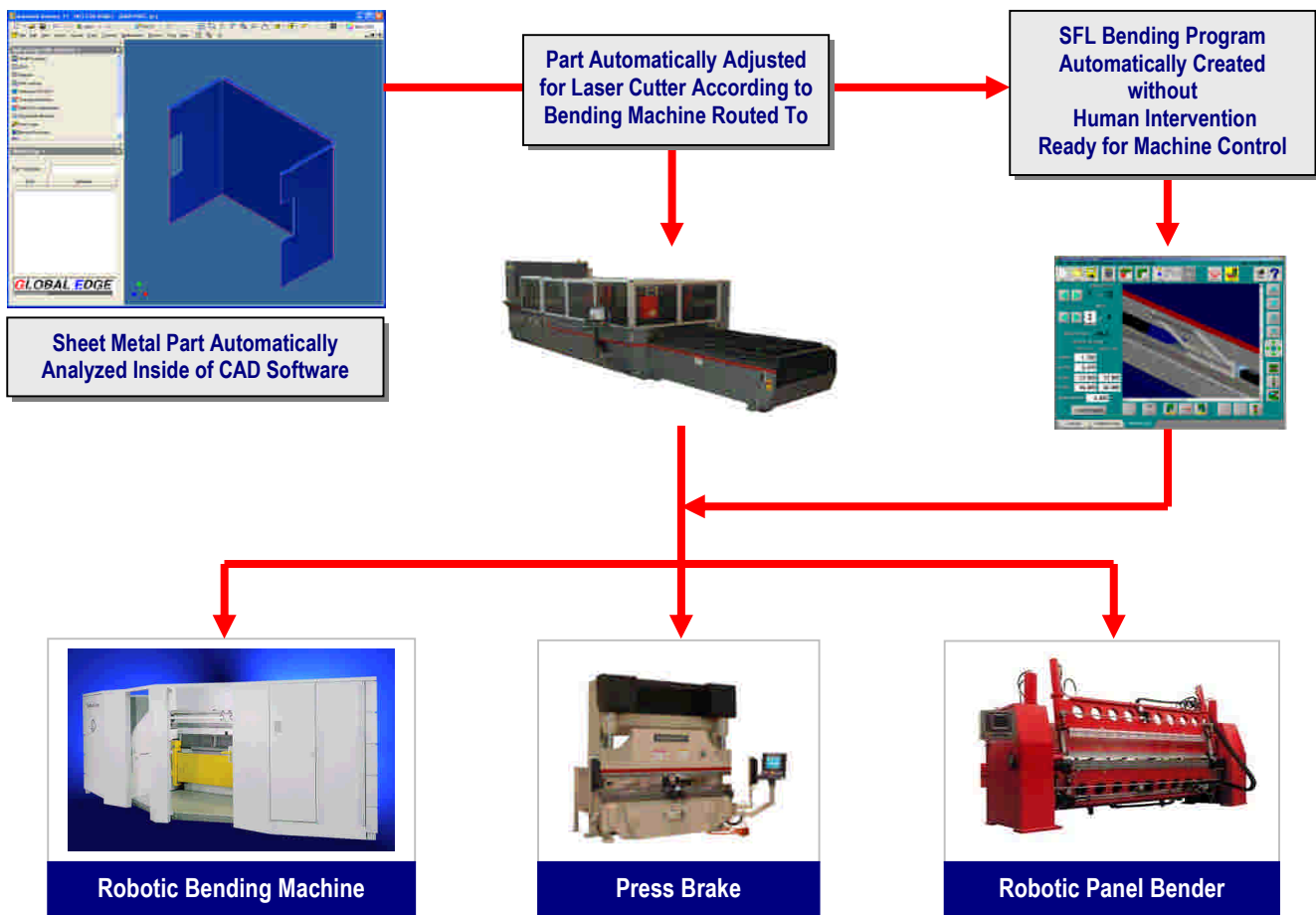
Standard Folding Language™

The **Global Edge® 11.0 – Productivity Suite** provides advanced software technology that automatically generates bending programs from 3D CAD Sheet Metal Parts without human intervention. The **Global Edge – Standard Folding Language™** eliminates the need for template bending programs and utilizes Artificial Intelligence software technology to automatically generate bending programs for Press Brakes and Panel Benders to achieve the following:

Key Features & Benefits

- **Automated Press Brake Program Generation**
- **Eliminates Need for Template Bending Programs & Human Intervention**
- **Helps Keep High Value Bending Cells Productive**
- **Significantly Reduces Training Time for Press Brake Operators**
- **Speeds Up Engineering & Manufacturing Cycle Times for Custom Products**
- **Significantly Reduces Manufacturing Engineering Overhead Costs**

Eliminates Manual Programming of Sheet Metal Bending Programs



Sheet Metal Part Automatically Produced without Machine Programming

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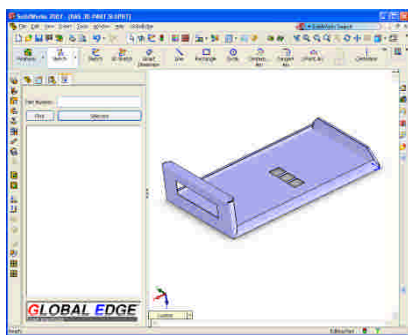
Manufacturability Testing

The **Global Edge® 11.0 – Productivity Suite** provides advanced functionality that allows an engineer to design a part and perform an analysis at the design stage to determine if a sheet metal part can be manufactured on a laser cutter, robotic folding machine, brake press or robotic welding machine. The **Global Edge** software performs a complete analysis on the part and compares it with the parameters of shop floor machine to determine if the machine can manufacture the part. This innovative functionality can save significant time and money by testing if a part can be manufactured before it gets to the shop floor.

Key Features & Benefits

- **Test New Designs in Engineering Before they Reach the Shop Floor**
- **Helps Determine Machine Best Suited to Manufacture Part**
- **Helps Avoid Costly Manufacturing Errors**

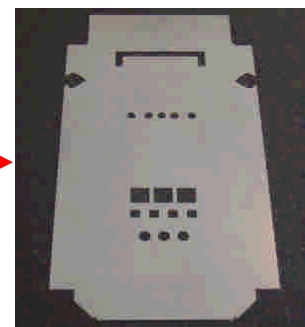
Make Sure Your Shop Floor Equipment Can Manufacture the Part



The **Global Edge** software compares the 3D CAD Model with the capabilities of the Folding Machine to insure the part can be successfully folded on the folding machine.



The **Global Edge** software checks if the flat pattern fits the sizes of your raw material sheet metal stock (internal stock sizes or vendor outsourced sizes).



Increase Engineering Productivity!

"Global Edge allows engineering to control the product which has dramatically increased the efficiency of the engineering and manufacturing departments."

Andrew Johnsen, Electrical Engineer
Lambda Electronics, Inc. – Melville, New York

Test if Parts Can Be Manufactured Before they Leave Engineering

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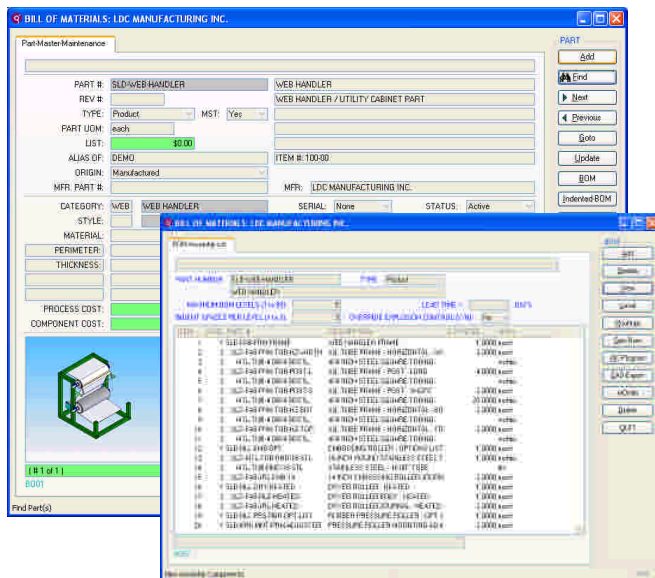
Advanced Bill of Materials / Routing Management

The **Global Edge® 11.0 – Productivity Suite** provides advanced bill of materials functionality designed to manage parts, assemblies, products and routings from initial design to final product shipment. Driven by a powerful product configuration engine, **Global Edge** automates the task of creating simple-to-complex, multi-level product assemblies including routings and cost roll-ups. With a direct interface to most major 3D CAD and ERP systems, **Global Edge** produces an accurate bill of materials that is stored in a "real-time" engineering data warehouse to which sales, purchasing, manufacturing and accounting have easy access.

Key Features & Benefits

- Reduce Engineering Design Cycle Times / Increase Design Reuse
- Automate Configuration of Simple-to-Complex Products
- Generate Accurate Bill of Materials / Routings
- Integrate Bill of Materials with Document Control
- Easily Find Existing Parts & Documents with Advanced BOM Search Functionality
- Eliminate Duplicate Part Numbers / Orphan Parts
- Centralize & Consolidate Multiple Bill of Materials Databases

Simplify the Process of Managing the Life Blood of Your Business



- Bill of Materials Management
- Powerful "Where-Used"
- Direct Interface to CAD / ERP
- Automated Product Configuration
- Automated BOM / Routing Generation
- Automated Cost Roll-Ups
- Automated Drawing Generation
- Automated Link to Production
- Electronic Cut Lists
- Integrated Document Control
- Enterprise Integration

Find the Right Information When You Need It!

"Global Edge has reduced the time spent entering data and searching for information resulting in 50% more design time available."

Jeff Duxbury, Project Engineer
Nelson Industries – Black River Falls, Wisconsin

Synchronize Your CAD BOM with Your Manufacturing BOM

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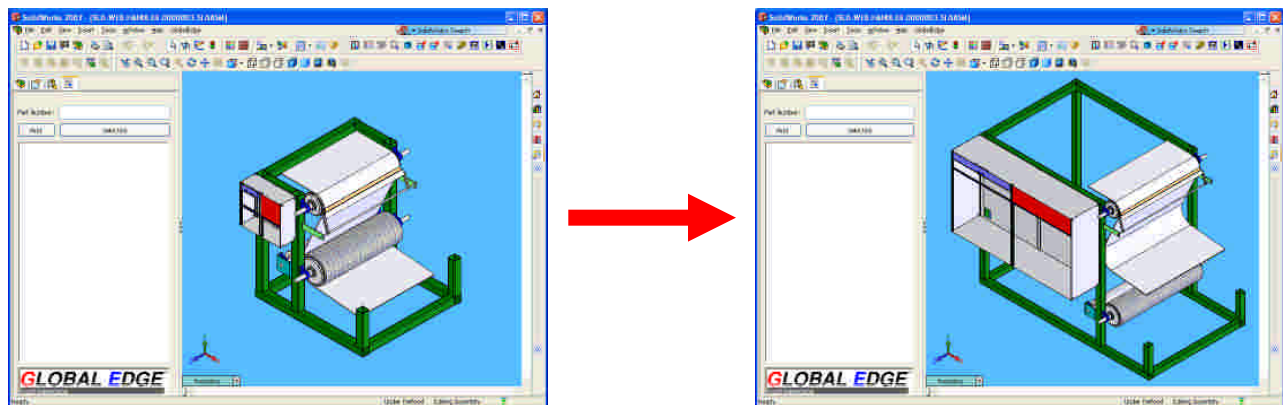
Automated Product Configuration / Drawing Generation

The **Global Edge® 11.0 – Productivity Suite** provides advanced functionality to automate the process of configuring simple-to-complex products and automatically producing both 2D and 3D CAD drawings associated with those configurations. **Global Edge** enables you to easily set-up Master Product Configurations based on engineering design rules, available product options, and automates the process of creating routings and NC programs to drive today's modern shop floor technology. **Global Edge** can integrate directly with your ERP / Business system to automatically create part numbers based on engineering and manufacturing rules.

Key Features & Benefits

- **Automatic Configuration of Simple-to-Complex Products**
- **Automatic Generation of Bill of Materials & Routings with Cost & Weight Roll-Ups**
- **Automatic Generation of Engineering & Production Ready 2D / 3D CAD Drawings**
- **Automatic Generation of Complete Information to Drive Modern Shop Floor Automation**
- **Automatic Generation of 2D / 3D Customer CAD Drawings for Sales Quote**

Simplify the Process of Providing Your Customer's with More Products Options



Reuse Rather than Re-Create – Quit Reinventing the Wheel!

"Without the Global Edge – Product Configurator, we would need to create hundreds of bill of materials (the list of damper components), which requires hundreds of engineering and clerical hours to create and maintain. Orders that once took up to four hours are now processed within 20 seconds."

*Steve Yoder, Damper Cell Manager
Johnson Controls – Watertown, Wisconsin*

Configure CAD Drawings in Minutes Versus Hours

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Automated Drawing Importation / Routing Generation

The **Global Edge® 11.0 – Productivity Suite** provides advanced functionality that automates the process of importing customer CAD drawings for the purpose of automated routing generation. **Global Edge** automatically analyzes the attributes within a CAD drawing and stores these attributes in the **Global Edge** database. The **Global Edge Product Configurator** then automatically generates routings in a matter of seconds based on the CAD attributes.

Key Features & Benefits

- **Automatic CAD Drawing Analysis**
- **Automated Routing Generation**
- **Automatic Material Size Selection for Nestings**
- **Helps Maintain Consistent and Accurate Part Numbers**

Eliminate the Manual Process of Determining How Parts are Manufactured

Global Edge - Drawing Import

Customer #: [] Find Customer View Log

Quote #: [] New Quote Find Quote

File Name: M:\dl-import-files\EST-003-2160098.dxf Find File Import

Operation: [] Close

No. of Parts: [] No. of Sheet Metal Parts: []

PART CATEGORY AND STYLE

Main Assembly: [] [] []

Sub-Assembly: [] [] []

Sheet Metal: SHT [] SHEET METAL []

Part: [] [] []

OPTIONS

Build Routing

Prompt Data

Write Log File

Detailed Log

Update Active

Update Pending

SHEET METAL PART PROPERTIES

Part X: 36.0656 No. Folds: 6 No. Hems: 0 UDM: inches

Part Y: 28.0656 No. Cutsouts: 124 Material: NS-CRS [] INDN-SPECIAL-CRS []

Perimeter: 125.963790 Cutout Pattern: 595 907029 Thick: 20 GA. [] (0.03)

DXF IMAGE

BILL OF MATERIALS: LDC MANUFACTURING, INC.

Routing

PART #: EST-0032160098 EST-0032160098

ROUTE #: 1 DESCRIPTION: STANDARD PART ROUTING

TYPE: Standard

LOCATION LEVEL: None

DEPT #: [] SET-UP COST: []

W.C. #: [] PROCESS COST: \$163.4265

ASSET #: [] COMPONENT COST: \$6.7643

TOTAL COST: \$170.19

ROLL-UP DATE: 02/16/2009

FOUND 4 SEQUENCES

SEQ #	ROUTING	ROUTING DESCRIPTION	TYPE	EST. COST
1	PROTOTYPE-LASER	Prototype Laser Operation	Process	\$160.9479
2	FORM-3	Form 3	Process	\$0.9039
3	FORM-5	Form 5	Process	\$0.9843
4	INSTALL-PEM NUTS	Install Pem Nuts	Assembly	\$0.5904

ROUTING

Add Update View Delete Header Alternate Recorder Test Quit

Cycle Time is Shrinking – My Customer Wants Everything “Yesterday!”

“Within one year of implementing Global Edge the time from order entry to shipment of custom power supplies decreased from four months to three weeks.”

John Garcia, V.P. Engineering
Lambda Electronics, Inc. – Melville, New York

Import Customer CAD Drawings & Generate Accurate Routings

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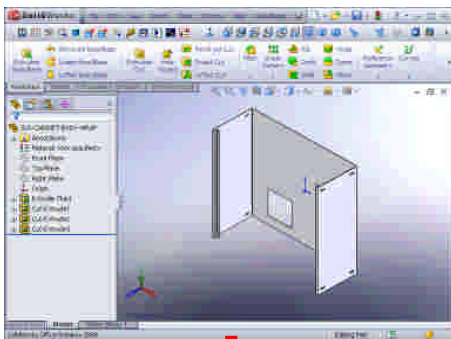
Automated Sales Quote Generation

The **Global Edge[®] 11.0 – Productivity Suite** provides advanced functionality that includes a powerful Sales Quote Generator that can automatically produce Simple-to-Complex Sales Quotes for custom configured, Engineered-to-Order (ETO) products.

Key Features & Benefits

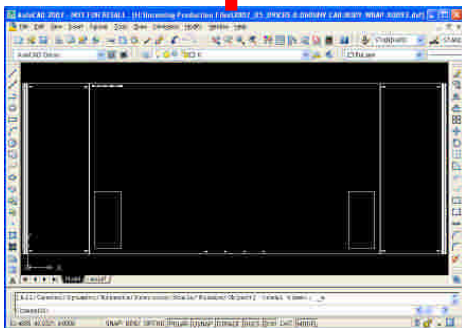
- **Effective Tool to Quickly Generate Accurate Sales Quotes for Simple-to-Complex Products**
- **Provides Ability to Configure and Generate CAD Drawings to be included with Sales Quote**
- **Allows Manufacturers / Sales Force to Offer More Product Options to Customers**

Automatic Sales Quote Generation of Simple-to-Complex Products



3D CAD Drawings

- Automated 2D / 3D CAD Drawing Analysis
- Automated Routing Generation
- Automated Time & Material Cost Roll-Ups



3D CAD Drawings

QTY	PRICE	TOTAL
1.00	100.00	100.00

Automatically Generate Sales Quotes from CAD Drawings

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CAD / ERP Integration

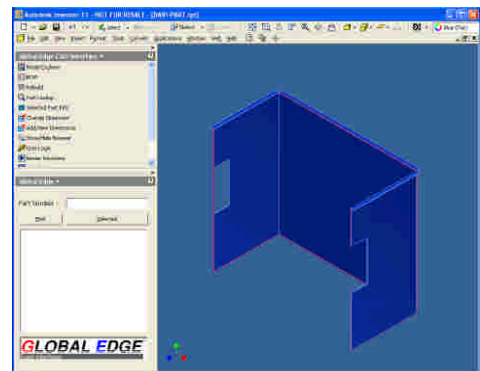
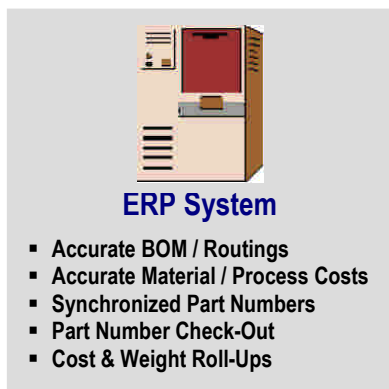
The **Global Edge[®] 11.0 – Productivity Suite** provides a direct two-way, real-time information link between your CAD drawings and your ERP / Business System. This interface automatically synchronizes the bill of materials within the CAD drawing with the bill of materials stored in your ERP / Business system. As components are added, removed or modified in your CAD drawings, the bill of materials in your ERP / Business system is automatically updated. **Global Edge** allows you to maintain an engineering bill of materials in your CAD drawing that is synchronized with the manufacturing bill of materials contained in your ERP / Business system. **Global Edge** integrates directly with machines on the shop floor to collect production information to provide your ERP / Business System with “Real-Time” production data.

Global Edge eliminates the manual retyping of the bill of materials and routing information into your ERP / Business system. Existing parts are easily found and reused instead of creating massive and expensive duplication of data and effort. As new parts and assemblies are created or modified in engineering, this information is dynamically updated and is made readily available at the enterprise level. Any customized changes are automatically updated in the assembly with the material and process costs re-rolled up and automatically updated back to ERP. **Global Edge** improves information accuracy throughout the enterprise and eliminates retyping information from CAD back to ERP or vice versa.

Key Features & Benefits

- **Automatically Synchronizes CAD Bill of Materials with ERP Bill of Materials**
- **Eliminates Manual Retyping of Engineering Information into ERP System**
- **Significantly Reduces Engineering Clerical Work & Improves Information Accuracy**
- **Provides Accurate “Real-Time” Information To and From Shop Floor**

Automatically Synchronizes CAD Drawings with ERP



Effectively Manage Your Enterprise!

"Global Edge has effectively introduced and updated a total program for Carron Net Company. Starting with the custom product Configurator and working through inventory, order entry, the general ledger and accounting, Global Edge has integrated a complete system. We have found the system easy to use and navigate, yet complex enough to handle our needs."

*Troy Christiansen, Vice President
Carron Net Company – Two Rivers, Wisconsin*

Bi-Directional Integration of CAD / ERP / Shop Floor Automation

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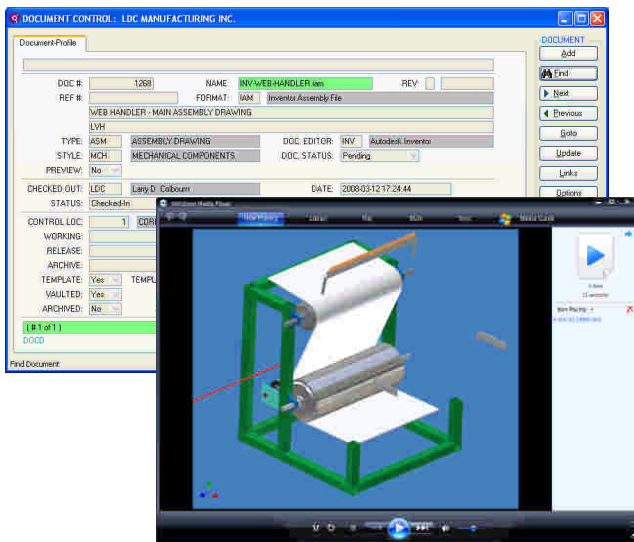
Integrated Document Management

The **Global Edge® 11.0 – Productivity Suite** provides integrated document management system that makes it easy to securely vault and retrieve documents enterprise-wide. **Global Edge** eliminates document search time and duplicated documents by securely vaulting documents as they are checked in. **Global Edge** incorporates drag and drop document vaulting that enables you to grab a document from your desktop and securely vault it with the point and click of a mouse. **Global Edge** provides a secure document vault that ensures documents are securely and accurately stored for authorized retrieval. **Global Edge** links and vaults documents attached to an actual bill of materials structure. This structure provides for virtually unlimited searching capabilities such as by: drawing, customer, vendor, project, job, ECO, work order, etc.

Key Features & Benefits

- **Secure Document Drag & Drop Vaulting**
- **Advanced Document Searching**
- **Document "Where-Used"**
- **Document Check-In / Check-Out**
- **Automated Revision Control & Approval**
- **Document Links Throughout ERP**

Retrieve Documents Based on Advanced Bill of Materials Searches



- Documents Where Needed in Workflow Process
- Documents Linked to Multiple Data Sources:
 - Parts / Assemblies
 - Routings / Processes
 - Engineering Workflow
 - Shop Floor Workflow
 - Shop Floor Equipment
- Advanced Document Searching
- Document "Where-Used"
- Document Check-In / Check-Out
- Documents Linked to Bill of Materials
- Automated Rev. Control & Approval
- Document Links Throughout ERP
- Document Access & Security Control
- Works with Existing Document / PDM Systems

Effectively Control Bill of Materials & Documents!

"Logic Design Corporation is an excellent example of Total Quality Management; They have proven to me time and time again that customer satisfaction is their number one objective."

M.J. Fox, Document Control Manager
Aztek Engineering Incorporated – Boulder, Colorado

Provides Documents When & Where Needed in Workflow Process

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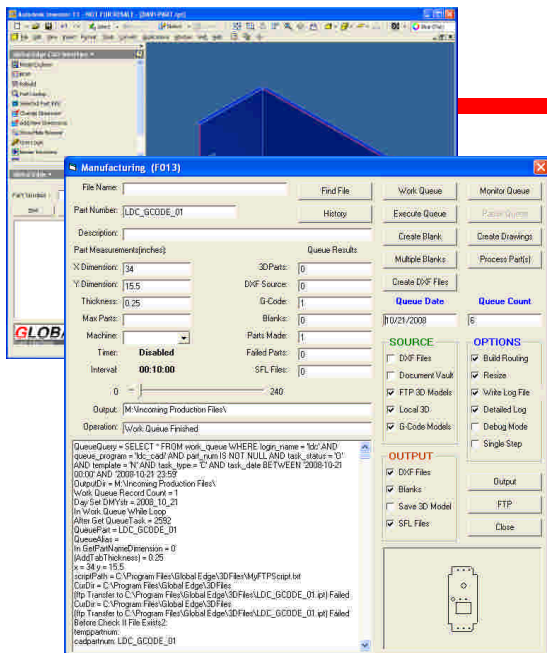
Automated Production Work Queue / Workflow

The **Global Edge® 11.0 – Productivity Suite** integrates directly with your ERP / Business system to eliminate the manual processing of Production / Work Orders. This includes the automated processing of 3D and 2D CAD drawing information made ready for automated nesting of parts, assemblies, and kits for automated laser cutting and folding of sheet metal components. Information processed can be sorted according to your scheduling / nesting requirements. This module can process daily order information from your ERP / Business system by integrating it with engineering and CAD to automatically process information ready for shop floor automation. **Global Edge** integrates work orders directly with CAD to process parts that need to be produced. This process includes determining if an existing CAD drawing exists in the engineering library. If so, **Global Edge** can add necessary information to the part such as: engraved part numbers, cross hairs, and include sacrificial folding tabs required for sheet metal bending machines. **Global Edge** can also process existing NC G-Code programs by automatically converting them into 3D and 2D CAD drawings that are ready for nesting software and the laser cutter. **Global Edge** can also automatically create programs to control sheet metal folding machines based on information contained in the 3D CAD model.

Key Features & Benefits

- **Significantly Reduce Manufacturing Overhead Costs**
- **Eliminates / Reduces Engineering Clerical Work (Non-Value Added Time)**
- **Automatic Generation of 2D / 3D CAD Drawings Based on Daily Production Runs**
- **Automatic Embedding of DXF Files with Manufacturing Parameters**

Automatically Produces Shop Floor Ready Production Data



- Automatic Synchronization of CAD BOM / Routings with ERP
- Automatic Collection of Part Parameters / Dimensions
- Automatic 3D CAD Drawing / G-Code Generation
- Automatic Part Resizing to Fit Production Machinery
- Automatic Generation of Press Brake / Robotic Welding Programs
- Automatic Embedding of DXF Files w/ Manufacturing Parameters
- Automatic Assembly Production Kitting

Shop Floor Ready Production Data



Automate Labor Intensive Manufacturing Engineering Processes

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Integrated Manufacturing

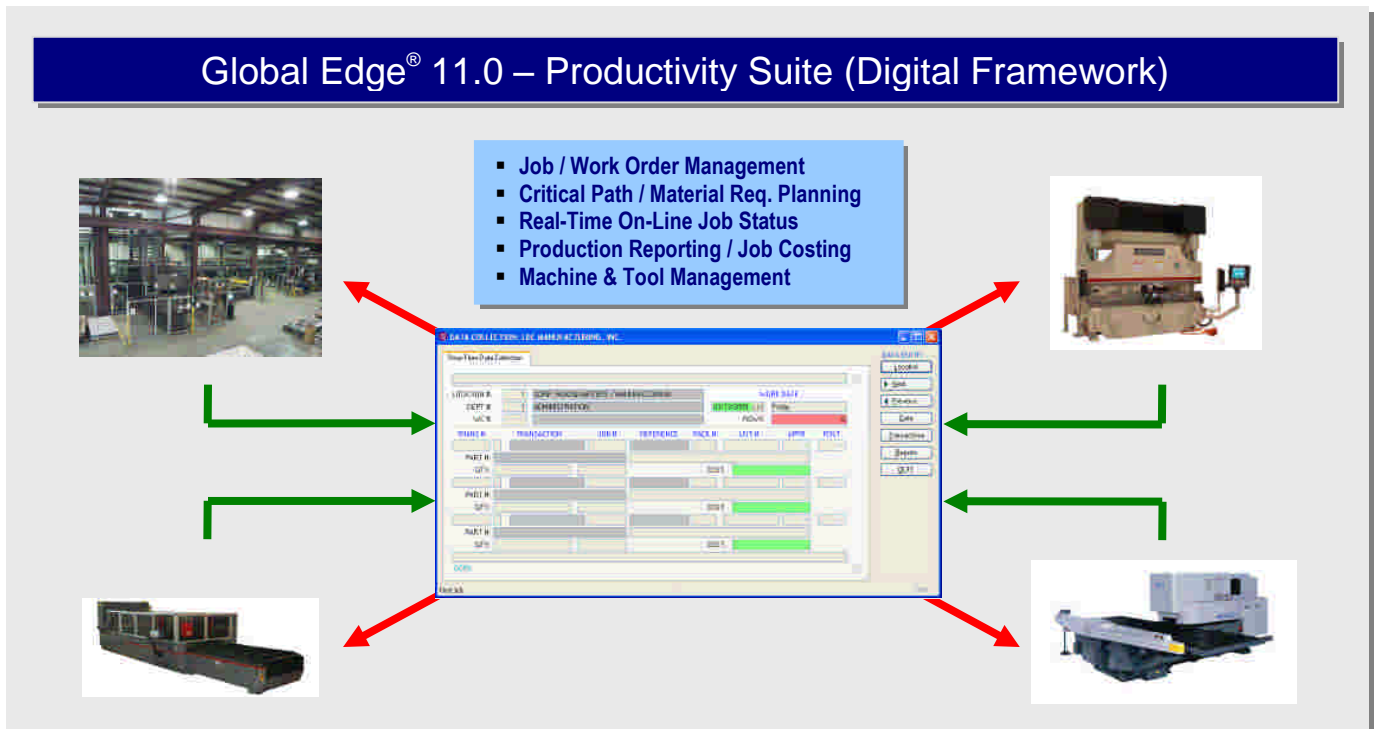
The **Global Edge[®] 11.0 – Productivity Suite** includes a full functioned Shop Floor Control / Manufacturing Execution System. **Global Edge** forges a strong partnership between engineering, purchasing and manufacturing to head off design and manufacturing problems to control costs. Material requirements planning, process planning, procurement, scheduling, material and labor costs, production tracking and quality control issues are all made more manageable with **Global Edge**. Automatic feedback of problem reporting to engineering constitutes a system that supports the requirements for ISO 900x certification.

Global Edge automatically integrates the engineering bill of materials and routings with work orders to help streamline the manufacturing workflow process. Bar coding provides real-time information for every job in production. **Global Edge** provides real-time, accurate job costing that breaks down each project and job by labor and machine time, as well as material and outside vendor process costs.

Key Features & Benefits

- **Machine Data Provided When & Where Needed**
- **Automated Job / Work Order Build**
- **Real-Time Shop Floor Machine Status / Log**
- **Monitoring by Location, Department, Work Center**
- **Real-Time Shop Floor Machine Data Collection**

Automatically Produces Shop Floor Ready Production Data



Provides “Real-Time” Data Flow To & From the Shop Floor

INTEGRATED DIGITAL FACTORY

Logic Design Corporation

Founded in 1983, Logic Design Corporation is a Software Development and Technology Integration Company that specializes in innovative, leading edge software solutions that help Engineer-To-Order manufacturing companies transform engineering and manufacturing to design and build products better, faster and cheaper. LDC helps your company stay ahead of the competition with proven products and services that are practical to implement and deliver a Rapid, Significant Return On Investment. LDC enables manufacturing companies to achieve high levels of engineering and manufacturing productivity and help attain an "INTEGRATED DIGITAL FACTORY" environment with products and services that include:

- ▶ **Global Edge® 11.0 – Productivity Suite**
- ▶ **INTEGRATED DIGITAL FACTORY**
- ▶ **2D / 3D CAD Programming**
- ▶ **Shop Floor Integration / Automation Planning**
- ▶ **Technology Integration Programming**



Johnson Controls, Cooper Power Systems, Siemens, and Lambda Electronics are some of the many companies that have benefited from the products and services of Logic Design Corporation. Benefits provided have included significantly reducing engineering and manufacturing cycle times by automating many of the manual time consuming workflow tasks that range from product configuration to drawing generation, to providing the shop floor with complete information when and where needed. For more information on how the products and services of Logic Design Corporation can help your company achieve significant productivity gains, faster delivery times, improved product quality, and reduced costs, visit www.ldcglobal.com or contact Logic Design Corporation to schedule a demonstration of the **Global Edge® 11.0 – Productivity Suite**.

Providing Innovation Solutions Since 1983

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Mission Statement

“Our Goal is to provide manufacturers with innovative, cost-effective solutions for reducing costs, improving productivity and streamlining operations to achieve a competitive global edge.”