



Frontier® Advanced Manufacturing Execution (AME)

Paperless, real-time delivery of shop floor production schedules



Frontier® Advanced Manufacturing Execution, AME, is a powerful browser based manufacturing execution system essential for companies implementing “lean manufacturing” production processes. When attempting to remove the “non-value add” activities, such as work order generation, cut-sheet printing, form collating, sorting and sequencing of paper on the shop floor, comprehensive communication tools must exist that deliver thorough instructions to the work center and allow effortless reporting from the work center. AME’s paperless, real-time delivery of the production schedule and job details to the work center will ensure the production department is working on the right task and accurately reporting the status of that schedule back to the Frontier system database.

AME is integrated with Frontier iSchedule, so when sequenced manufacturing jobs are released or scheduled for the production floor, they are visible immediately at each work center without complex paper reports. Work-stations located in each department display the schedule information that defines:

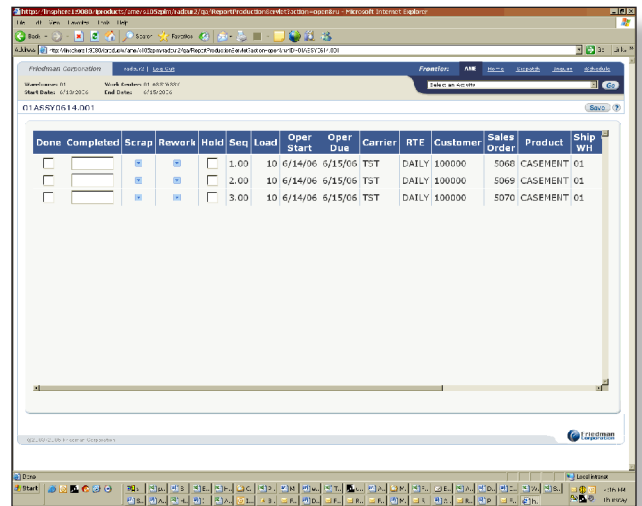
- What to build
- When to build it
- What order to build it in
- How to build it
- Report that it has been built
- What to do when it has been built

AME is also integrated with Frontier Visualizer which allows two dimensional images of any configured product, product or component to be displayed directly at the work center.

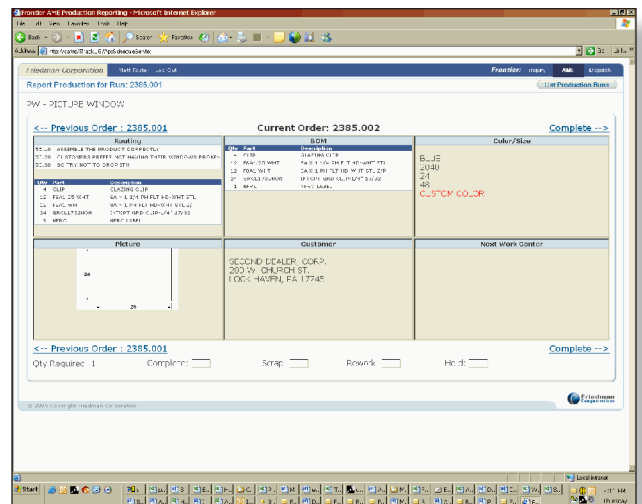
Reporting the completion of production can be configured by each work center to the desired level of detail. AME allows the reporting of an entire schedule being complete, exception reporting within a schedule and detailed reporting of completed units or “license plates” (individual units of a multi-unit work order) within a schedule. Scrap reporting is also supported by user defined reason codes, which feeds scrap analytics. Each scrap reason code determines the routing of the scrapped unit, thus supporting rework and remake processes. Additionally process duration time of each performed operation is automatically captured allowing analysis of operational run time standards and identification of “non-value added” time elements.

AME is deployed using Microsoft® Internet Explorer which can operate on low-end PC’s or diskless PC work-stations. Since these PC’s may be located next to equipment that produce dust

or emit chemicals, which might have adverse effects on traditional computers, PC’s designed for harsh environments may need to be used. Each user has the ability to configure their display, thus optimizing the information they need to see in order to perform their production process. User configurable screen layout and content remove the dependency on expensive Information Technology (IT) resources to create unique displays and paperwork for each work center.



List View feature shows all jobs in a particular run by hours, shift or day.



Each user can choose to display the specific information needed to perform their production process.



Key Features of AME:

- List View feature shows all jobs in a particular run by hours, shift or day.
- Task Filter shows only the jobs that the work center can start on based on the prior operations being reported as complete.
- Easily display on screen: Bill of Material (BOM), Process Instructions (Routing), Product Drawing/Image, or Notes from the work order and customer sales order
 - » Product Detail and descriptive information
 - » Configuration data defining the product being produced
 - » Operation specific instructions
- Support 'Micro Sort' at machine allows the operator to apply a unique sort of the jobs that are being worked on to allow more efficient processing, reducing set-up and change-over time
- Allow update of screen with: Barcode scan, RFID read, Mouse Click, or Touch Screen
- Allow Triggering Release of the work order upon completion of prior job.
 - This delays order release restrictions to the last possible moment allowing more flexibility when addressing how to respond to last minute changes in orders and priority of orders.
- Support Work Order BOM Maintenance
- Support Work Order Routing Maintenance
- Support Picking (CE/Window Screens on Lift Truck)
- Support Work Order or License Plate (Unit) Hold (with Reason Codes)
- Trigger Event Notifications for material shortage, inspection required, etc...
- Support calculating process duration time at work center rate.
- Cut Sheet view allows generation of a consolidated list of parts to be processed, summarized, and totaled by characteristics of the part.

Benefits of Implementing AME:

- Eliminate the dependency on cumbersome shop paper schedules. The results of Frontier's production schedules, created in iSchedule, are communicated to the floor without the need for printing any paper at all. Once shop paper is printed, production agility is compromised.
- Lead times are reduced as the delivery of the schedule to the floor is immediate. Work orders do not have to be released hours in advance of paper work being printed. Flexibility is now provided to respond to demand changes.
- The production schedule can be dynamically rearranged. Schedule changes on the floor are immediately visible to Frontier database. Production efficiencies will improve and thus reduce operational costs.
- Status of production schedule is visible to enterprise without intrusive data entry activities.
- Scrap reporting creates visibility to remake and rework impact and progress. Scrap reporting creates identification of quality and continuous improvement opportunities.
- Critical engineering specification data is delivered directly to the production work centers. Accurate information will reduce the number of production defects.

User Requirements:

Hardware

- 2.4 GHz CPU and 512MB of RAM
- Hard Drive disk space required 50MB
- Ethernet or wireless card for network/LAN/WAN connection to with Frontier AS400

Software

- Frontier 2.1
- Windows OS: WinXP, Win2003 Server, Windows NT
 - Commercially available Linux version
 - Macintosh workstation
- Java Runtime environment libraries 1.3 and higher

iSeries

- SQL RPG development kit
- OS400 V4R4 and higher

Communication:

- TCP/IP connection between Workstation and Frontier iSeries server.

