

Entivity Material Handling Success Story #405



Customer Profile

Control Dynamics provides system integration for material handling, process control, and manufacturing systems.

Application

- Material Handling

Industry

- Warehouse Distribution

Location and Web Site

- Grandville, Michigan
- www.cdi-mi.com

Key Benefits

- High-speed logic solve
- Integration of machine control, and HMI functions
- Integration with corporate network and AS/400

Mission-Critical Capability

- Hard realtime control for high-speed material handling

“The fast and deterministic logic solve time ... allows us to realize about 1” of tracking resolution while running at speeds in excess of 600 fpm.”

*Mike Bridle
Principal Engineer
Control Dynamics, Inc.*



935 Technology Drive, Suite 200
Ann Arbor, MI 48108
1-800-722-6875
www.entivity.com

VLC — A perfect match for TrueSort® and TrueMerge

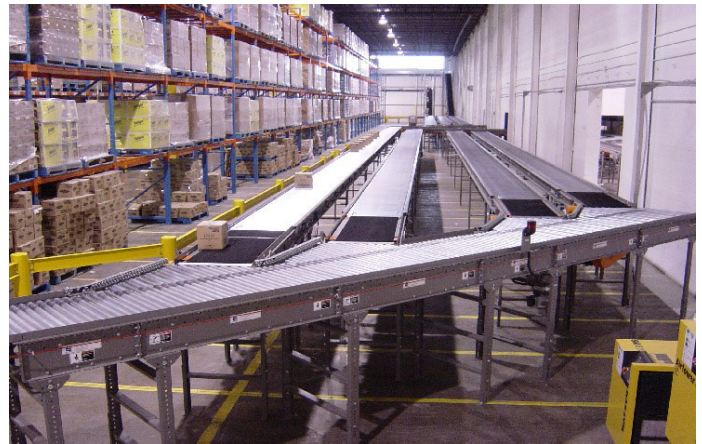
Control Dynamics, Inc. of Grandville, MI has developed a high-speed conveyor sortation application using Entivity VLC software. The requirements of identifying, tracking and diverting cartons at up to 600fpm can be very demanding on a control system. TrueSort® easily handles the situation using the VLC, Interbus I/O and some custom developed OPC applications.

The most recent installation of TrueSort is an order fulfillment application in a distribution warehouse located in Mississauga, Ontario. The sortation conveyor runs at 230fpm, has 11 diverts and can sort cartons in excess of 85 cartons per minute.

To facilitate picking products from the pallet rack system, an IBM AS/400 computer generates a barcode label. The label tells the picking operator the location and quantity of cartons required for each order.

As the operator places each carton on the conveyor, he/she attaches the label to its top.

The conveyor system moves cartons to the sortation area through two multi-line merges. Scanners from Accusort read the top label and the SCC product label on the carton sides. The system sends barcode information to the AS/400 to confirm that the correct cartons were picked for the order and to get a shipping destination for each carton. Typically, the AS/400 responds to the desti-



One of two multi-line merges running with Entivity VLC and TrueSort. The system can sort over 85 cartons per minute.

nation request in less than .25 seconds. After TrueSort delivers the carton to the correct destination, it sends a message to the AS/400 confirming the delivery.

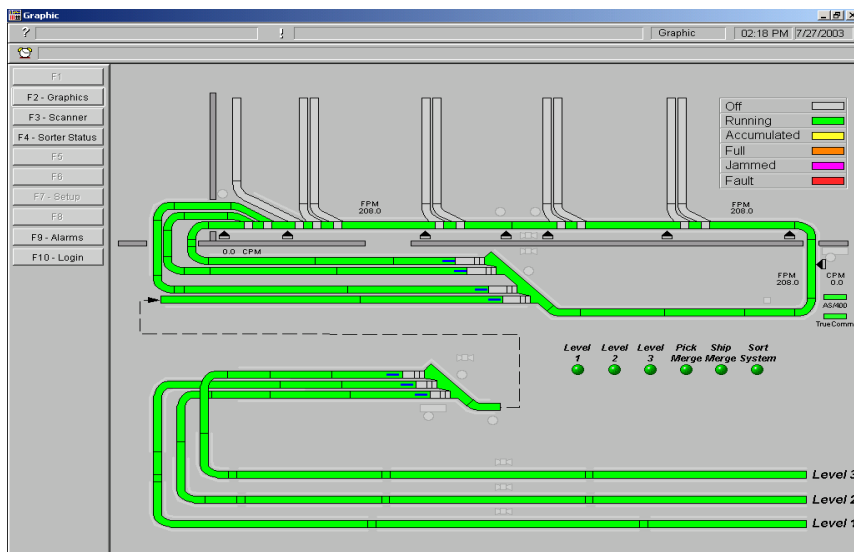
Fast Program Scan Time & Deterministic I/O

To maintain a high level of accuracy in delivering cartons to their proper destination, TrueSort analyzes carton length and gap between cartons at each photoelectric sensor in the system. According to Mike Bridle, Principal Engineer, Control Dynamics, “The fast and determin-

Customer Satisfaction

“TrueSort relies on Entivity VLC Software to provide the design flexibility, control execution speed, and data connectivity needed to exceed our customers’ expectations.”

*Jeff Frankum
Application Sales
Control Dynamics, Inc.*



Status screen lets the operator instantly locate a problem.

istic logic solve time, coupled with the similar characteristics of the Phoenix Contact Interbus Inline I/O, helps us keep system costs down by allowing us to connect incremental encoders directly to discrete I/O instead of high speed encoder modules. Even though our logic solve time is fixed at 2ms, the VLC actually solves in less than .2ms, and it scans the Interbus I/O every 2-3ms. This high speed allows us to realize about 1” of tracking resolution while running at speeds in excess of 600fpm.”

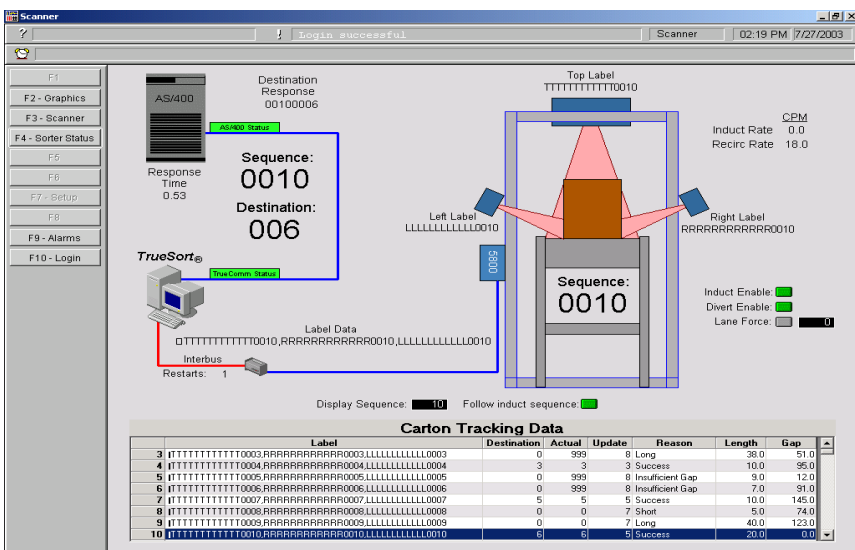
Large Data Storage

Un-like PLCs, the data storage capabilities of the VLC are virtually limitless. Bridle continued, “We are able to define multi-dimensional arrays for keeping track of carton tracking information. This allows us to retain and display historical carton tracking information for several thousand cartons.” This feature is very helpful in troubleshooting carton routing issues. Storage of the label, tracking data, host computer destination, and carton sizing and routing decisions for each carton lets the operator see exactly what happened.

OPC Connectivity

A critical function of TrueSort is to communicate to the AS/400 and display large amounts of information to the operator in an organized way. Without being able to get information into and out of TrueSort in a fast and efficient manner, the system would not function. Using the VLC connectivity through OPC, Control Dynamics wrote their own OPC client applications. They created a transaction management system, called TrueComm, that lets the AS/400 communicate directly with the VLC through an Ethernet network. They also developed a Data Grid capable of displaying OPC data in a scrolling window. This lets them display large amounts of array data. The scrolling nature of the grid allows Control Dynamics to configure the software for different sized systems without having to redraw the operator interface screens for each project.

For more information on how Entivity can help solve your application, visit our website at www.entivity.com, or call (800) 722-6875.



The operator Data Grid provides complete information regardless of system size.