

Computer Intelligent Terminal Operation System(CiTOS)



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I: Profile

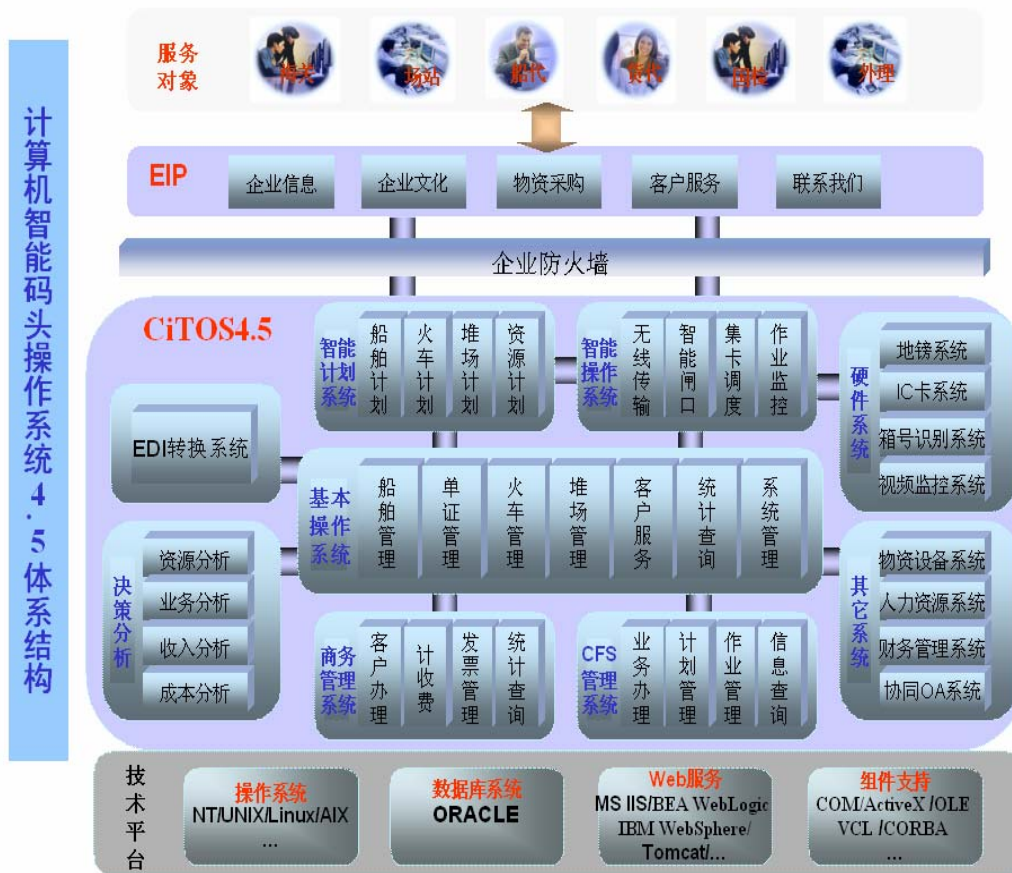
CiTOS is short for Computer Intelligent Terminal Operation System, which is designed and developed by Huadong Soft-tech Co.Ltd independently. With the advanced technology and excellent system architecture, it provides a complete solution for the container terminals.

II: Functions

We complete the CiTOS design on the basis of real-time architecture and graphic operation mode. It realizes the goals of dynamic real time, automatic planning and monitoring, intelligent preview and review as well as user-defined report form.

We use the modularization designing to make it more extensible and flexible. We fully consider the operational technology characteristics of various equipments to let resources like berth, yard space, or machines be under intelligent control. Therefore, it can be more adaptable for container terminals of different sizes

2.1. System Architecture



2.2. Functional Structure

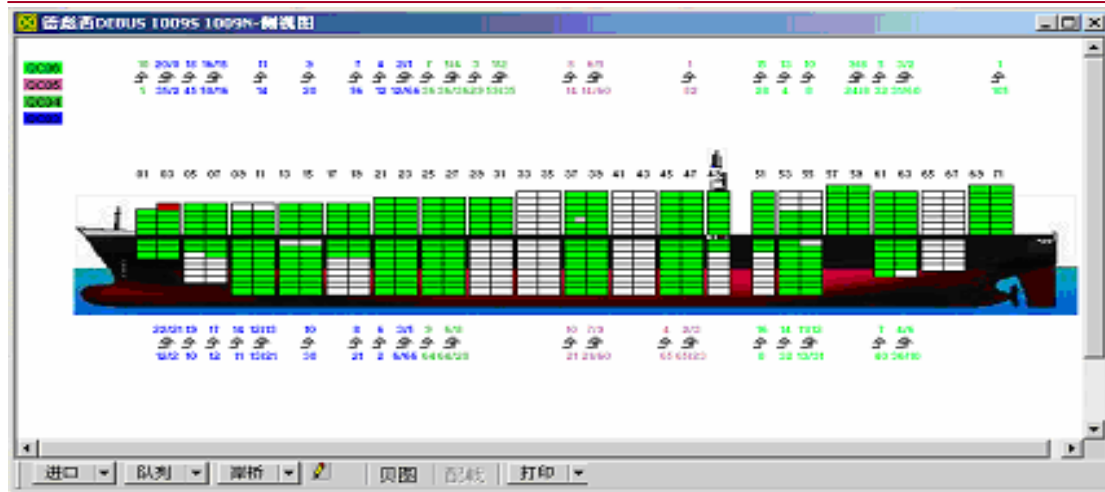
III: Features

Intelligence, stability, real time operation, flexibility and practicality are the excellent characteristics of CiTOS. On one hand, it provides efficient platform for terminal operation; on the other hand, it adopts object-oriented design method to advance software efficiency. The message-oriented middleware ensures CiTOS real-time operation

3.1. Operational Features

Ship planning

- Ship editor (including setting for ship documents, bunks, BAY Plan, Pre-stowage parameter, hatch, hazardous cargo, etc)
- Support simultaneous loading and unloading
 - Support machine adjustment while in operation process
 - Support 19 cargo handling patterns
 - Display different plan views according to the various situation
 - Automatically position each quayside crane according to lines amount and the distribution of each container
 - Very easy quayside crane distribution list
 - More than one ship plan display visual angle
 - Support collapsible container planning
 - Display of hazardous cargo, reefer, and special container
 - Automatic berth planning and berth use display
 - Support operation simulation according to the plan
 - Support multi-dimensional statistic report forms and predefined report forms conditions



Stowage planning of container vessels

- You could compound several stowage planning solutions with the help of five container selecting tools and nineteen ship operational mode tools. It has a standard ship stability and a carrying capacity computing function.

Blurred stowage planning: it realizes the batched towing mode in the premise of reducing yard's container shift and guarantee the ship stability.

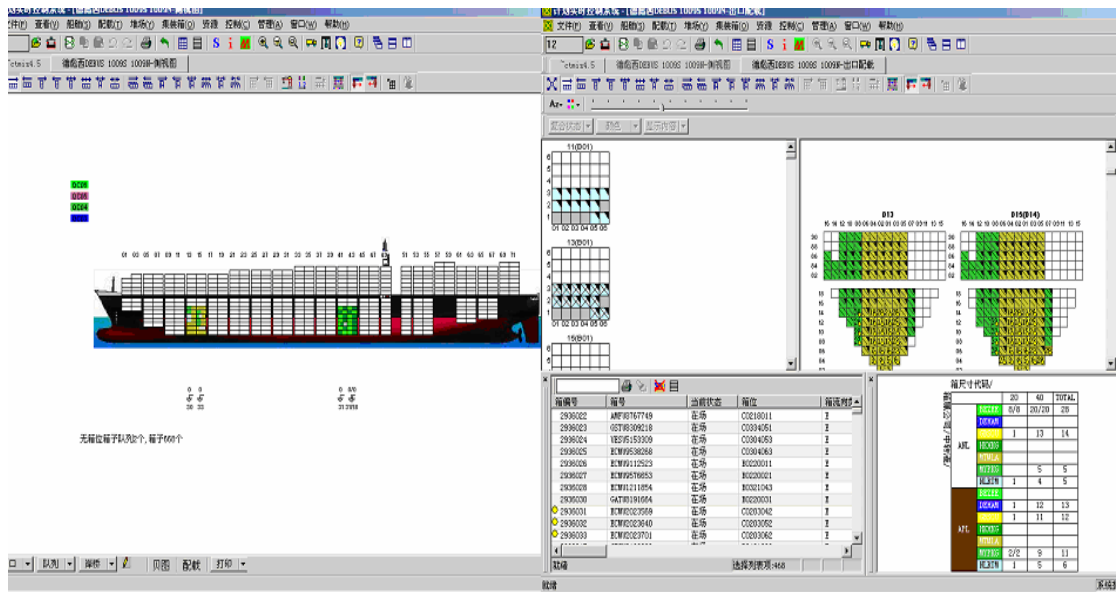
Automatic stowage planning: it could complete stowage planning automatically according to the BAY Plan and the arrangement of operation lines, as well as the factors of assuring ship stability and reducing yard's container ransacking. In terms of thousands of TEU vessels, 15 minutes is enough for stowage planning.

Cooperative stowage planning: it could easily realize such a flexible mode: several staff make one stowage planning for a large-scale vessel. Synchronous data's display and operation makes planning more efficient.

Support editing table.; quick and efficient filtration of container that are on the yard.

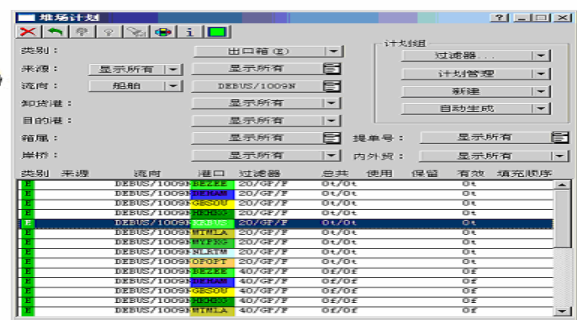
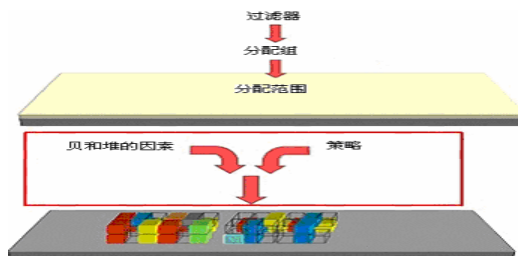
Support stowage planning / stowage / direct stowage operation patterns

Support record and return in the course of stowage planning.



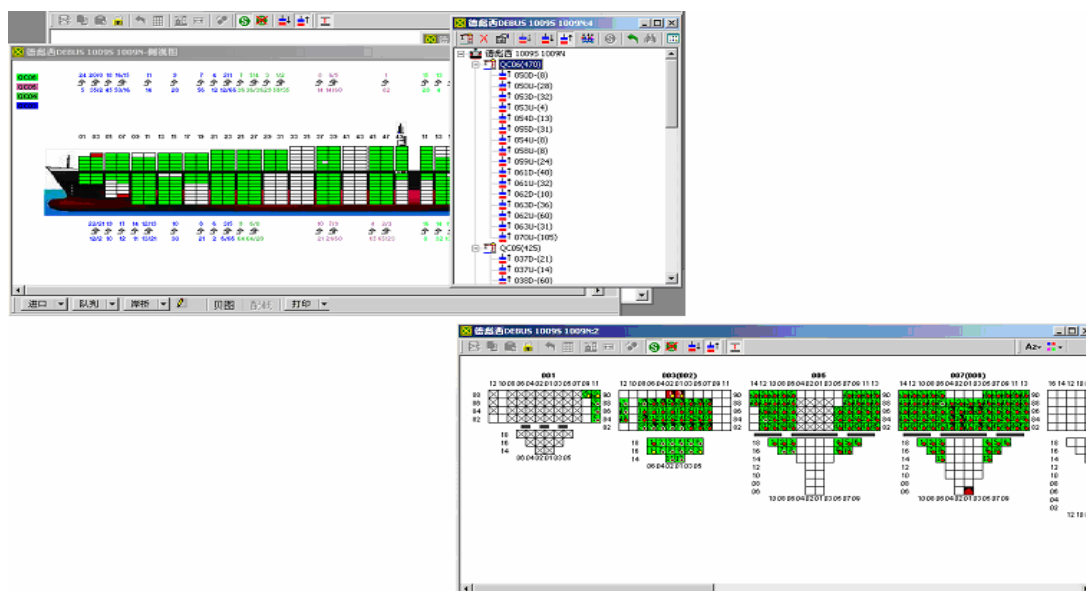
Yard Planning

- It provides a yard planning filter the could be iteratively used.
- Planning group will be built automatically
- Graphical planning towing operation; planning area will be displayed transparently
- More than one yard planning solutions and operation patterns to provide the entering containers a proper position in the yard.
- Yard container display template could be defined by customers
- Support display modes such as: terminal layout, yard bitmap, and bay plan, etc
- Operation rules supporting
- User-defined member report forms



Resource planning & operation control

- It has the ability of equipment management
- Support yard machinery area operation planning and operation spots planning
- Operational tasks
- Operational queue
- Vessel loading and unloading equipment group appointment
- Quayside container crane operation monitoring and adjustment
- Machinery operational area appointment of the yard
- Support direct pick up and loading of vessel containers
- Outturn handling for containers
- Vessel cargo-handling completion notarizing



Quayside container crane handset terminal operation

- Display of instruction list
- Display of vessel Bay Plan
- Handset notarizing operation for vessel cargo-handling completion
- Damage container management
- Container attribute amendment
- Support collapsible container notarizing
- Support back loading / back unloading, add loading / additional unloading operation



- Support synchronous acknowledgements of two containers
- Return function after a mistake operation

Tire crane car-carried terminal operation

- Complete the operations as container move notarizing, entering or exiting from the yard, and container loading and unloading from the vessels, etc.
- Automatically formed shift queue
- Container placement control of the previous container and the one after
- Operation control of picking up containers according to the container number and the amount
- Operation rules validating: empty or heavy containers' mess piling up, operations in the air, the hazardous cargo, and reefers

Container trailer dispatch

- Support the united dispatch of all trailers in the yard
- Support the dynamic dispatch of container lorries during the operation
- Support the synchronous loading and unloading operation
- Container trailer grouping: you could bind the container trailers to the single vessel, quayside crane, yard container crane, and the yard.
- Automatically order the trailer according to the setting of crane's traveling lines and PRI of crane
- Reduce the deadhead traveling distance and the waiting time; match the available trailers and the operation orders.

Smart Gate control

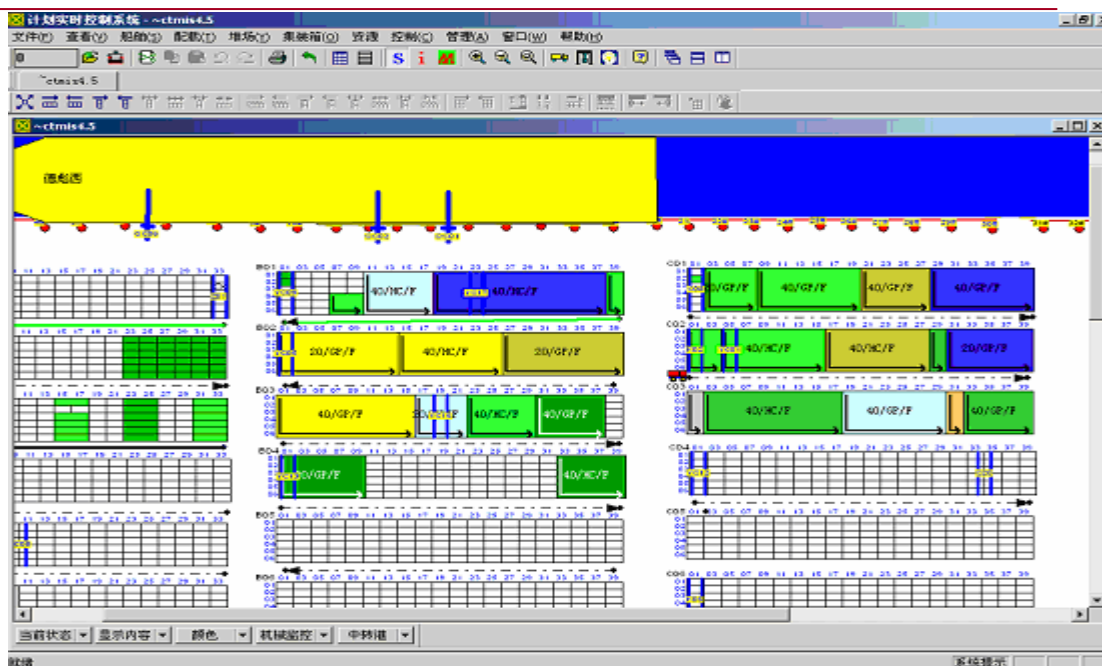
- Automatically appoint the position for containers and search for the containers needed
- Support automatic recognition of container number
- Support automatic IC card recognition, bar code scan, etc
- Automatic platform scale data read



- Control of returning and exchanging container
- Control of damaged containers
- Control of collapsible containers
- Control of direct pick up and loading of vessel containers
- Control of forbidding picking up of those unpaid containers
- Interfaces to the Customhouse and Import and Export Commodity Inspection and Quarantine Bureau
- Support Dredging / gathering Port operations
- Accept control order of transaction deadline

Terminal monitoring

- Graphical display of vessels, quayside container crane, gate house, yard machine and equipment.
- Real result display of all kinds of operation plans
- Display of efficiency
- Schedule display of all kinds of operations
- Real time reflection of changes, you need not refresh by yourself
- Provide five yard display views
- Three container states display (present state; future state; compound state); yard planning, vessel stowage planning could be made under the three states.



EDI

- Support user-defined message standard, support free format message
- Automatic and general message receiving and sending functions
- Perfect data validating function, strong data rectifying ability
- Provide abundant functions; support second time development

Business management

- General, flexible, automatic, and exact counting and charging functions
- Strong operation flex and support ability; It need not programming when solutions for charging is changed
- Support client's credit audit function; real time reflection of client's fees that happened in the termianl
- Support financing interface, support directly creating fiscal credence
- Support operation tache charge control
- User-defined report forms and automatic filling
- Provide strong and flexible fee data query function
- Flexible uesr-defined service
- Support e-reckoning and perfect EMAIL service
- Support transferred operational fee solution
- Support bulk cargo operation fee solution

- Support market department analysis
- Support fiscal department analysis

Decision support

- It provides more than one excavating modes like trend forecast, assorting mode to help the managers make more valuable strategic solutions
- It defines the objects and queries
- It analyses the problems and produce the results
- It has a repeated and in-depth analysis function

3.2. Technological Characteristics

Wireless terminal

- CiTOS supports both 400m and 2.4G standard wireless terminal equipments
- Character terminal: we adopt Teklogix wireless equipment and TSDK (development kit provided by Teklogix) in our product. The use of Teklogix's unique simulation application makes the project more secure.
- Wireless terminal graphical terminal: it adopts 3-tier structure to put operation logic into the middle tire

Other features

- Message-oriented middleware based on security and reliability
- This system has a high degree of automation and a sophisticated algorithm.
It also accepts the equipment parameter deploying
- The system design match better the needs of key businesses.
- System implementation modularization method, object-oriented design and programming
- It has a strong query function and flexible report forms making
- Flexible and secure system management
- It contains a lot of graphical functions to make the operation visual, flexible and convenient.
- It is more extensible and maintainable

- It provides Internet service

IV: Customer Value

- CiTOS owns the excellent experience in the area of terminal operation automatization and operation implementation.
- CiTOS provides a complete, easy-use, specialized and customized solution for the terminals. It advanced indissolubility and flexibility of terminal operation It provides solid base for terminal development
- CiTOS could greatly improve the terminal operation efficiency
- CiTOS could improve terminal's enterprise image and service quality
- CiTOS is specialized in customer's need. And it has a complete and quick-response customer service system. It aims at ensuring customers' past, present and future investment returns.

V: Typical Clients

Nansha Stevedoring Co.,Ltd of Guangzhou Port

New Oriental Container Terminal Co.Ltd

Tianjin Port Alliance International Container Terminal Co.Ltd

Yantai Gangtong Container Terminal Co.Ltd

Guangzhou Huangpu Port Co.Ltd

Zhangjiagang Win Hanverky Container Terminal Co.Ltd

Jinzhou New Times Container Terminal Co.Ltd

Shenzhen Chiwan Wharf Holdings Limited

CSX World Terminals Yantai Co.Ltd

Nantong Port Container Terminal Co.Ltd



Hankou Container Co.Ltd Of Hankou Port Bureau

Zhanjiang Zhonghai Container Terminal Co.Ltd

Dalian Dagang Zhonghai Container Terminal Co.Ltd Guangzhou Port Group Henan Branch

Longkou Container Terminal Co.Ltd of Longkou Port Group

The Company of Fangchen Port

Jingtang International Container Terminal Co.Ltd