# TPi**CS-X / (English Version)**

## (Production & Inventory Control System)

# TPiCSX INTRODUCTION

# About TP<span style="color:red">i</span>CS-X

## 1 Functions and features of f-MRP（Basic system）

①*TpiCS* realizes
- Speedy, reasonable and fast reaction
- but stable manufacturing at the same time

by its unique **f-MRP** function.

②It is compatible to any manufacturing process,
- It does not matter whether it has repetition or not.
  It can be used at any types of manufacturing industry whether repetition is high, low or none.
- Parts intensive manufacturing
  It can be used at assembly manufacturing industry
- Material processing industry
  It can also be used to manufacture semi-conductor
- It can also be used at manufacutring industry dealing with fluid or powder.
  It is also good for food and drug industry
- It can be used for both project production and build-to-order manufacturing.
- It is also suitable to manufacture based on untrustworthy unofficial announcement
- It also matches to a management system that is to replenish inventory kept at parent company.

③It makes management of multiple storage places, multiple manufacturing places and multiple supplies possible.

④In the event of parts change due to design change and so on, it is shifted to new parts after consuming inventory or parts already arranged.

⑤User can add items freely, and even input them on *TPiCS-X* screen, print out and write into text file.

⑥There are so many more optional functions.

Input product plan to calculate necessary parts and materials by registered master.
Needless to say, it assigns inventory on time axis, collects lot or calculates leading time that need to catch up.  Moreover, *TPiCS-X*'s **f-MRP** function allows short delivery time to customers as it assures stable manufacturing plan at the same time.

## 2  Navigation function

As more than 10 common patterns of master setting are registered, user can create necessary master automatically by only inputting code and name and clicking a button.   This helps you understand functions of *TPiCS-X* quickly.

## 3  Master registration and maintenance function

●Only the following five Masters are required to be registered
  ① Item master
  ② Product structure table
  ③ Person in charge of manufacturing master
  ④ Unit price and vendor master
  ⑤ Process master
● "Data focused search function" mentioned below streamlines operation.   Only necessary data are displayed and corrected by grid or form of <span style="color:red">one case screen</span> one after another.
●In addition, 「Collective correction function」unique to *TPiCS* realizes collective correction of even large quantity of data.
  ◇ I would like to incorporate decrease of man-hour in average hours in the new term.
  ◇ I would like to reduce material price by material Quality.
  ◇ I would like to shorten the period evenly from purchase order to delivery.
  ◇I would like to adjust standard inventory by group.
  In such cases, it "focus" to the only target data.   If, for instance, decrease rate is input, data is replaced after calculation.
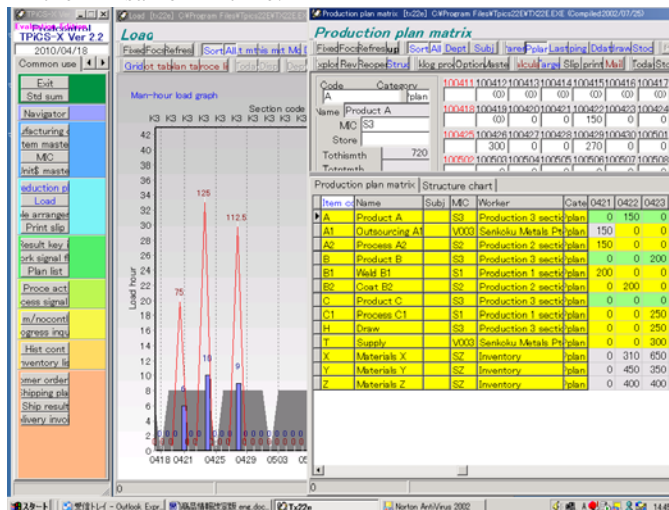  Almost all items can be updated collectively.
●Collective duplication function
  Just input code and name in grid, and many masters can be created at a time from sample data
●Master registration of system can be easily executed as it can load CSV text file created by Excel.
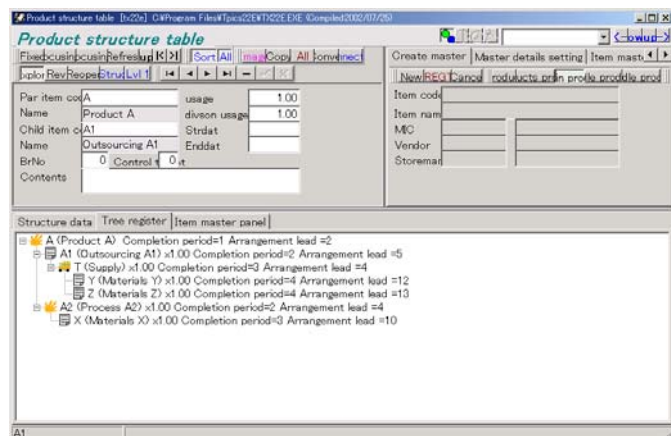
（1）Item master
●It is also called parts master, which register parts, material or process to be managed.
●It is used to input unit to collect lot (purchase unit), standard stock, days required, processing period, unit price or average hours.

● 2 phase lot collection or lot collection with prescribed period (e.g. within one month) are enabled. Moreover, front-loaded calculation in order to fit in specified lot size can be also executed.

**(2) Product structure table**
●Parent-child relationship and its usage can be registered.
●Structure parts can be registered by drag and drop operation on the structure display screen.
●It has operatability and function that can be called as parts table editor since it can copy existing structure to new product or integrate many product structures into new structure.
●All necessary masters, such as Unit price master and Process master, as well as product structure data for multiple child parts can be created automatically.
When the system is introduced, it demonstrates its powerful functionality.
●Structure display can be seen on all main screens only by clicking a button.
●Display of reverse explosion and ortho-explosion can be switched easily.
●Usage by division can be input.
●Child parts can be converted collectively. Only simple operation is required to switch parts to those with same functions yet lower cost.



**(3)Unit price, Vendor master**
●Multiple vendors, multiple accomodation period, multiple accomodation quantity and each unit price can be input by parts.
●For instance, as ordering parts X from company A, unit price of the product depends on quantity by 30 September as follows; ¥100 for quantity 1~1000, ¥90 for quantity 1001~5000, ¥80 for quantity more than 5001. However, from 1 October onwards, different unit price is applied. Moreover, another unit price is input in a different system for company B. Even such a complicated system of unit price can be input.
If these can be written on text file from e-catalogue or such, it is easy to load in *TPiCS-X*.

**(4)Switch master**
● Existing inventory and consumption time is calculated, then order is swithced to new parts auomatically only by inputting old and new parts code.
●In case production plan of a product or number of inventory is changed, it is automatically adjusted.
●Deficiency in used parts at track record input is switched automatically.
●Date can be specified directly.

**(5)Split order master**
●Conditions to order one part from multiple vendors in parallel are input.
●Split ratio and quantity limit for each vendor is input

based on conditions of time and quantity.

**4　Funcition of managing product which mass production is discontinued by each master**
When data like masters is required to be mainteined and managed in volume, which is not usually produced, due to production for repair, another data area is created by MS SQL Serve or Oracle and those data are transferred to the area created. In order to reproduce, those data can be moved back to usual database, and transferred to another area after reproduction is completed. It enables usual database to be operated in a light condition.

**5　Function of issuing production plan table and slip**

Both "Monthly plan" as a space booking and "Slip" as an instruction of commencement are printed out.

**（1）Production plan table**
●It is used to input plan that parts or process is on vertical axis and operating days is on horizontal axis, to check calculation result, or for daily operation.
●Some parts must be ordered two months before whereas some parts can be orderd on the current date to be delivered on the following date. All parts are displayed on a plan table in view grid in blue for the ordered parts, in silver for the parts which must be ordered on the day and in yellow for the parts which can wait to be ordered.
●Multiple procduction venues can be managed.
It allows plans that outsource one process to multiple vendors, or sometimes produce in-house and outsource the other time to be created and managed.
●In case of producing in multiple production venues, it calculates supply plan for each production venue and issues supply slip based on the calculation.
●In case of using the system in network environment, in order to avoid influence on other clients, such as deterioration of response, user can duplicate necessary data in a different data area, calculate requirements based on the data, and translfer only necessary data to the original database after the calculation.

**（2）Simple arrangement function**
Although f-MRP requirements calculaion function in *TPiCS-X* is very powerful, it is often said that it is too difficult to fully utilize or such an advanced function is not necessary.
In order to meet such requiments, material explosion is executed based on the familiar idea of "backorders and assignment".
It reflects assignments of not only inventory of end materials, but also inventory in-process and half process as well as failure rate and standard inventory, and of course, it executes lot collection. Moreover, multiple inventory venues, multiple production venues and multiple supply venues can be managed.
In other words, it can be said that it is an arragement calculation function that is equal to f-MRP of *TPiCS* without functions like bucket and time axis.
This simple arrangement function and manufacturing number control are mainly managed in a Small business package.

**（３）Work slip, Purchase order sheet, Transfer (Supply) slip**
●Order number (days and quantity) is calculated by requirements calculation, and various slips are printed out based on the calculation.
●Unit price master enables user to order from a vendor which matches the conditions like timing and quantity as well as offers the most reasonable unit price.

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● Parts code, such as catalogue No., specified by vendor can be used to order

● System chooses necessary slip to issue when necessary.

● Parallel order can be made to multiple vendors.

• Slip form can be customized easily and flexibly.

● It issues a slip attached by a list of necessary parts and a taking-out slip attached by a breakdown of supplied parts.

● Lot number of raw material to be used can be specified on manufacturing order slip.

● Issuing detailed instruction (slip) for each process as well as managing track record are enabled by Process master. Track record input of process exploded data can be chosen whether to be executed or not.
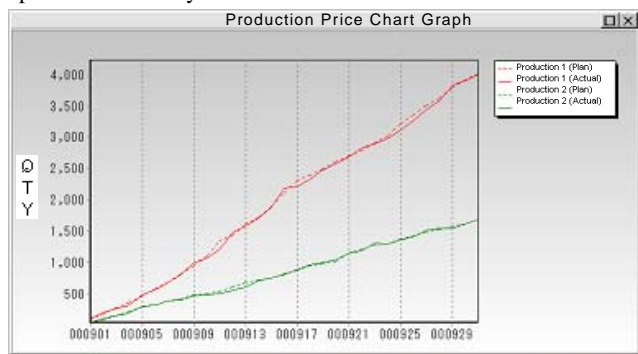
● Purchase order sheet can be sent by E-mail.

（４）**Issuance of delay list**

● It is able to list up not only a delay item as a result, but also items that delivery date is approaching, say next week, and issue list of expected receiving items by each vendor.

It helps prevent delivery delay, instead of processing after delay occured.

## 6　Creating Control chart

Input only daily result, and you can create and display;

● Cumulative total graph of production plan and result

● Transition graph of inventory amount

● Transition graph of number of delay case

● Transition graph of process yield

Targeted manufacturing section, line, or vendor can be specified flexibly.



## 7　Track record management

（１）**Track record input**

● When materials or parts ordered are delivered, input them as a track record, and inventory of the item increases.

● Credit sales specification book is created by input data.

● When inputting track record of purchased unit price and track record of working hour, it is recorded as a record value. (Moving average method or Final unit price method or Gross average/gross price method).

This record will lead to track record of initial unit price.

● By inputting resulting hour by worker, work team, machine, process, it compiles by each category.

● By manufacturing with using a part, product or semi-manufactured goods is produced. When result is input, inventory of manufactured goods increases and inventory of the part decreases. (Automatic deduction) Setting of "non-deduction process" or consumption calculation that is not linked to received amount of parent parts are also possible.

● For an important parts whose lot number must be input for sure at reception, if setting of such is made, the message prompts accordingly when the track record of material set as important is input.

● When manufacturing result is input, which material (lot number) is used can be input. The data is traceable anytime. History of manufacturing can be recorded from reception to completion of manufacturing (shipping) as required.

● If manufacturing goes as planned everyday on some level, only some operation is required for a data that cannot be manufactured as planned, and result of others can be recorded only by clicking one button.

● Unit for requirements calculation, track record input, inventory check, or even registration of product structure table, and so on can be set individually.

（２）**Inventory management**

● Inventory in process or inventory at destination of supplies can be managed.

● Multiple inventory venues can be managed.

Receiving venue can be specified when receiving as well as taking-out venue can be specified when taking-out, that makes it possible to comprehend the number of inventory of parts in each warehouse.

● Failure and process yield can be disposed.

● Inventory amount based on cumulative initial cost (based on standard initial cost and resulting initial cost) can be printed out.

● Inventory in-process by received lot can be managed.

● Holdup inventory, which is a part not used during specified period, can be displayed and printed out only by clicking one button.

## 8　Initial cost management

（１）**Initial cost totaling list**

● It copes with both methods that compiles initial cost by each manufacturing number and process cost system.

● It cumulates initial price according to data in product structure table.

● Totaling of standard initial price and resulting initial price by manufacturing number can be executed.

● Standard initial price and resulting initial price can be compared by each expense item.

● Processing cost is calculated by work hour and processing cost rate of section-in-charge.

● Initial price item can be set by user flexibly.

● Current inventory amount, receiving amount of the month and taking-out amount can be printed out.

（２）**Credit sales account book**

● At track record input, material cost, work hour, maker's correction can be input at each time, and it is reflected to credit sales account book.

● Charged supply and charge-free supply can be managed.

● Track record data of previous month can be input or corrected after closing date.

## 9　Work load plan

● Work load (load and pile) by process or per day is displayed in a graph and printed out.

## 10　Track record of inspection

● If an item is registered as inspection required, inspection data is created automatically when product result or purchase result of the item is input by master and inspection result can be input directly.

Even if perchance input is left out, it is made up for because data is created automatically. Thus, left out item will not be left as-is.

● Inspection item can be set freely as many as desired.
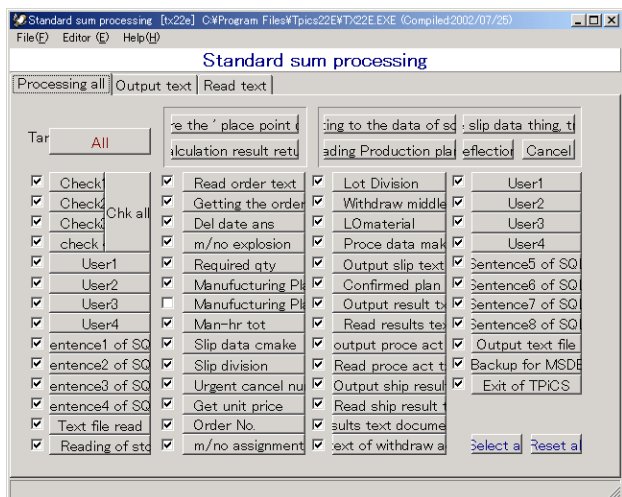
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## 11  Operating Calendar

●Maximum 30 types of calendar, such as different off day, or different operating hour, can be registered. Shift management is also possible. (Maximum 24 shifts)
●Calender to be used for each factory or process can be specified.
●Disaggregate plans, such as a plan by day shift and night shift for the current month, by day for next month and by week for the following month, can be created.

## 12  Adding items, data search, focus function and sort

●Data search can be executed easily on all screens and for all items (user item is also searcheable)
●Since focus conditions of data are stored in a memory, only data that one is in charge can be displayed.
●AND and OR can be set flexibly.
●Sort can be executed by only one click on all screens and for all items.   Multiple sorts can be also specified.
●As order of grid can be customized, items that is not in frequent use can be moved to the screen end.
●All data are readable from text file and writable to text file.
●It can be used in cooperation with Microsoft Project.
  Planning data is written in the form that Microsoft Project can read directly.   After adjusted by Microsoft Project, result is written by Microsoft Project.
  The data can be read by *TPiCS-X* directly.
●Graphics data can be displayed by only clicking one button.   Compatible graphics data are JPEG, Bitmap, Meta file, Extended Meta file.
●Data protection function is enhanced so that any accident can be prevented.
●Operating envionment that is limited to functions in daily use can be created easily.

## 13  Formalized collective process function

Once the system goes on-line, many daily operations can be done by one click.   "Formalized collective process" enables continuous process by specifying a sequence of process and clicking "All" button.



## 14  About *TPiCS* data

If development tool, such as Microsoft Access or Visual Basic, is used to operate datase to be used for *TPiCS, TPiCS* data can be operated directly.   "Explanatory material of data file" can be written from *TPiCS-X* and contents of items are shown.   Moreover, since *TPiCS-X* allows user to add items freely, user can easily enhance and remodel the sysem, such as getting

form that *TPiCS-X* does not have, or inputting on a desired screen. It can be said that *TPiCS* and user share the database.

## 15  Adding items

Although there are strengths and limitations in customization of package system, limitations tend to be overlooked.   With my 20 years of experience, I have seen so many harmful results of customization.   Thus, I tried to make the system unable to customize (not required) upon development of *TPiCS-X* .   By Analyzing customization condition of *TPiCS* user, I have found out that they are stuck due to major customization by adding item that is not included in *TPiCS* (Package system) and inputting or printing it.
Then, in *TPiCS-X*, user can easily add item flexibly, print and write in text by setting up input area. Printing additional items set by user on slip is also done by simple operation.

## 16  Setting input area

In case of product management system, it is unavoidable that each table has many items, which are displayed on a screen and input.   However, there should be items that are not required for some users. *TPiCS-X* enables moving unnecessary items to the screen edge and setting tab order.   Thus, user can create high operatability screen.

## 17  Coperation function with scheduler

Plan data can be transfered between the system and scheduler available in the market by only clicking one button.   Please refer to "Related system" page of this document for information of compatible schedulers.

## 8  Cooperation with host computer or other systems

**（Special customize cost is required）**

*TPiCS* is able to input and output all data in text file format.   Moreover, since it is able to read and write data directly by using database software, user can input on own screen in *TPiCS* and print out own form via Access or Visual Basic.   As *TPiCS* is very flexible, various system integrations are possible depending on your idea. (Examples here are all actual example)
1 It can be liaised with sales management system available in the market.   Requirements calculation can be executed by using order data input by sales management system and product inventory.
2 It can be liaised with accounting system available in the market.   Journalized (payable and receivable) data can be written in the accounting package system.   It is written in accordance with format prescribed by each manufacturer.   Please contac us for compatible system.
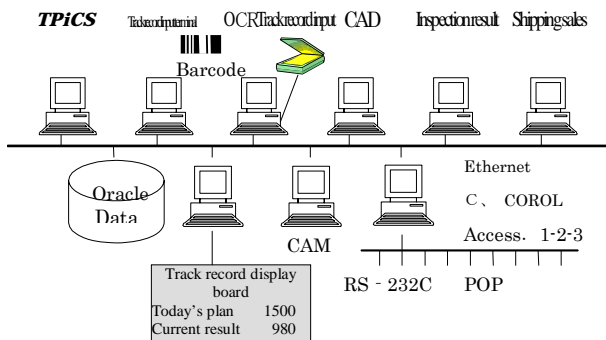3 It can be worked with systems like Excel or MS
  Access.
●Very simple operation is taken to execute process that monthly delivery quantity (expected quantity) from parent company is broken down per day and read by *TPiCS*.
●Data in Excel or MS-Access can be transferred to *TPiCS* and vice versa.   In addition, result of process can be returned to *TPiCS*.
●It can be worked with a self developed system created by simple database

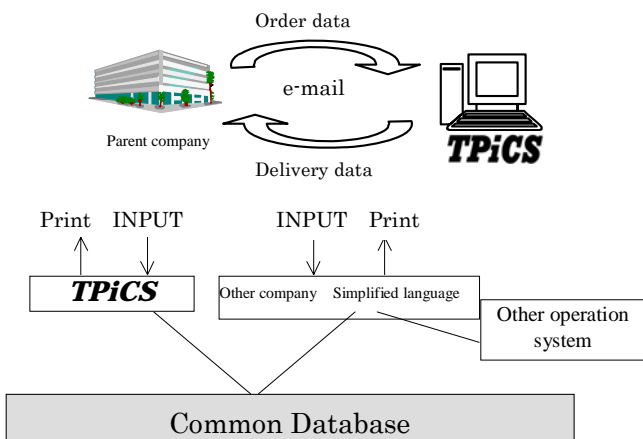  It can be liaised easily with POP system.

If *TPiCS* is activated constantly, text file of trackrecord data can be read automatically in specified time interval.
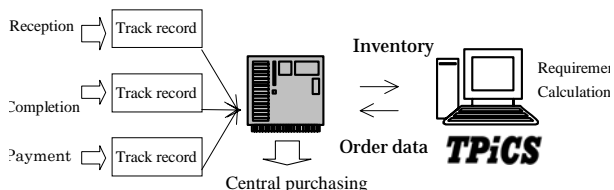
5  With *TPiCS,* detailed plan for local can be created by reading product plan in Host, or it is also possible to establish logistics network with outsouce maker by the same theory.

*TPiCS- J* can read any order data as in standard system by simple operation as long as it is in the common file form.

Developing this method further, shipping data instructed on a "board" is read by batch so that requirements calculation can be executed.



6  *TPiCS* receives track record data or inventory data in a host computer and executes requirements calculation on *TPiCS*, then returns the result to the host computer to make an accounting process for order company-wide. Some users establish such a process.



7  Some users gear the system to automatic warehouse. Data of parts necessary for work is passed to automatic warehouse to be taken out, then the result is returned to *TPiCS*.  In addition, automatic warehouse side receives parts and passes the data to *TPiCS*.



8  Track record data can be fully read.
This function enables user to liaise with POP as well as receive delivery form in data so that *TPiCS* can read it directly.  It makes it possible to establish full logistics system that comprehends collaborating companies.

9  It is able to print out purchase order sheet on a slip specified by user.  As data format of the slip that needs to be printed is available, it can be printed in an intent form by using Access or the sort.

Function spcific for food/chemical manufacturing industry

● A concept of batch is applied.
   When displaying Product strucure table (ingredients label, recipe), track record or inventory, it is able to input or display with the unit of batch amount and Kg converted.
● Unit to be used or the number of decimals can be set flexibly by each item.
● Upon track record input, allotted track record value and actual measured value can be input separately.
● When used amount of product structure table is input, even requirements calculation in very slight amount is possible as the number of decimals can be set flexibly.
● Unit can be set freely and it can be even converted during a process.

| 19 Applicable range |

● The number of product/part that can be registered                 : 2.1 billion
● Targeted days of product plan
                          : Maximum 365 days (bucket)
● The number of times that can be processed per month              : Unlimited
● The number of parts that can be registered per product               : 2.1 billion cases
● Depth of parent-child structure level
                          : MAX 100 level
● The number of master of supplier that can be registered             : 2.1 billion
● The number of slip per day       : unlimited
● Digit number of parts code   : MAX 25 characters
● The number of characters of name
                : MAX 52 characters(26 kanji characters)
● The number of characters in remarks : 255 characters
● Digit number of order number   : MAX 18 characters
● Digit number of product number : MAX 25 characters
● Place to produce one item           : Unlimited
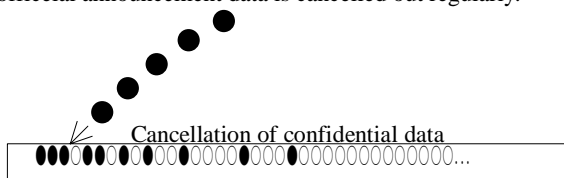● Place to store one item             : Unlimited

# *TPiCS-X*
# Order sales management option

## 1 Overview

（1） Shipping slip, delivery slip, invoice and account receivable book can be issued.

２） By collaborating with **f-MRP** function, order of parts or material based on unofficeial announcement plan is possible. Even if unofficeial announcement plan is changed, it can be directly passed on to next requirements calculation as it is based on **f-MRP** function

（3） Order data can be used as shipping plan of *TPiCS* and even requirements calculation can be executed.

（4） Order list, shipping plan table of prescribed date or shipping delay list can be output.

（5） Order data or delivery instruction data on internet and the sort can be imported directly.　File type is CSV format file.

（6） It is fully compatible with daily delivery instruction.　It can read order data as cancelling out a unofficeial announcement data.

（7） It can be set as a back order that is not reflected to product plan.

（8） List of order status by customer or product can be printed.

（9） Order data can be input at any level of product structure, which enables OEM shipping of semimanufactured goods or parts and management of repair parts.　Moreover, requirements calculation can be executed in consideration of those required number.

(10) Credit management that can cancel out sales individually is possible.

(11) It has an interface that allows requirements calculation to be done by using order data and product inventory of other company's sales management system.　Once table name and item name of targeted data are input, *TPiCS* executes requirements calculation with the value of the table.
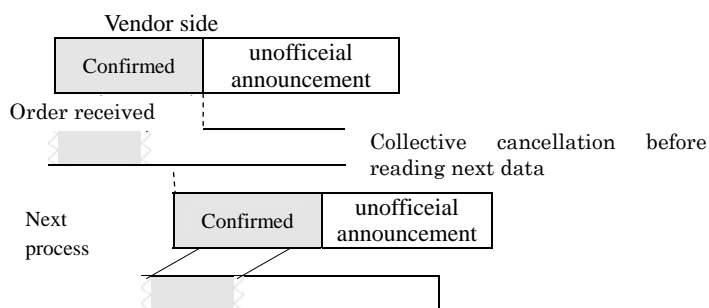
## 2 Handling of confidential data

●In case that confirmed delivery instruction data is transferred daily, such as automobile industry,　data can be read as an unofficeial announcement data is cancelled out regularly.

Cancellation of confidential data

Cancellation of unofficeial announcement data is assigned from the item of earliest prescribed date by each item and delivery destination.

● Confirmed and unofficeial announcement data can be processed.

unofficeial announcement data can be terminated regularly and new data can be reloaded.

Vendor side

| Confirmed | unofficeial announcement |

Order received

Collective cancellation before reading next data

Next process
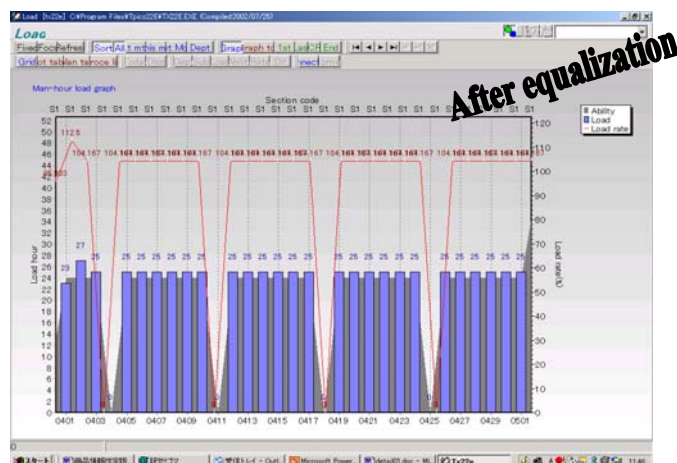
| Confirmed | unofficeial announcement |

# *TPiCS-X*
# Automatic equalization option

## 1 Objective

It meets the needs such as;

「As order is concentrated in the end of month,　I want to bring them forward to make an equalized plan.」

or 「I want to make an equalized plan for only some of critical processes.」

## 2 Outlook of equalization

(1) Equalization is executed during requirements calcaulation of *TPiCS*.

(2) During requirements calculation, work load and load factor are compiled based on the calculaion result at the point of time by each parent-child level.　For those which load factor exceeds the setting value, relevant plan is moved to back and forth.　Only unconfirmed plan is targeted to move.　Requirements calculaion of child parts under that is continued based on a plan after equalization.　Variation of plan due to equaliztion is absorbed by f-MRP function, that is a major characteristic of *TPiCS*.

(3) Process can be taken as moving up front or backward.　In case of moving backward, it is processed within parameter margin set by each item so that it does not crash with post-process.

(4) Necessity of equalization and sandard load factor can be set by each production line.

Targeted item is set by "Equalization priority" in Item master.



Before equalization



After equalization

# *TPiCS-X*
# Work traffic light option

## 1 Overview

This system is for process management of the site. It is recommended for those who think as follows;

「I want to make a plan backed up with load because the site complains if load cannot be controlled as giving an instruction to the site.」

「Site cannot be under control as they make decision at their own choice. I want to control them by computer.」

「Labour hour for preparation varies depending on production order. I want to make a plan that has less variance.」

「There are several machines whose capacity are slightly different from each other in each process. Therefore, whether a product can be manufactured depends on the product to be manufactured. I want to make an efficient plan as much as possible in such a situation.」

「Whenever we receive enquiry on delivery date from customer, we must go to the site to answer. I want to make the information available on computer screen.」

「Although parts are arranged by MRP system, it is still so messy that it cannot respond to variation of demand. In order to catch up with a period changing drastically, a system that is able to create an in process schedule quickly with a proof of parts is desired.」

Work traffic light option is not a system that is like people urge track record in order to reflect track record, but a real time process management chain system that movement of items move data as well as data move items.

## 2 Function of Work traffic light option

●Within LAN environment that *TPiCS- X* is running, the function is worked on a computer belongs to either foreman of the site, group leader or person-in-charge of shipping venue.

●When computer is switched on, work for today and tomorrow are indicated in a list. It is important that display is limited to work for a few days only.

●When a plan is changed on a computer in the office, the change is reflected to all others' computer immediately.

●Those which necessary parts are ready, pre-procss is not completed, and is ready for commencement any time among all are displayed at a glance.

When Pre-process button is pressed on a data that is not ready for oommencement, information such as which process, which child parts are in defect, and how the plan is made are displayed in a window.

●Press Start button after process to be taken is decided based on the screen. After completion, press Register button, and track record registration is completed.

●When Start button is pressed, all information from next process to when pre-process is started are displayed.

●After track record registration, it disappears from plan instruction screen. On the other hand, it does not disappear without track record registration, that is, you lose track how much it is completed without track record registration.

Thus, timely and punctual track record registration, the most important factors for system administration, is realized.

●When track record registration is executed on a work taffic light screen, it is reflected to quantity of inventory, etc. on TPiCS in the office simultaneously.
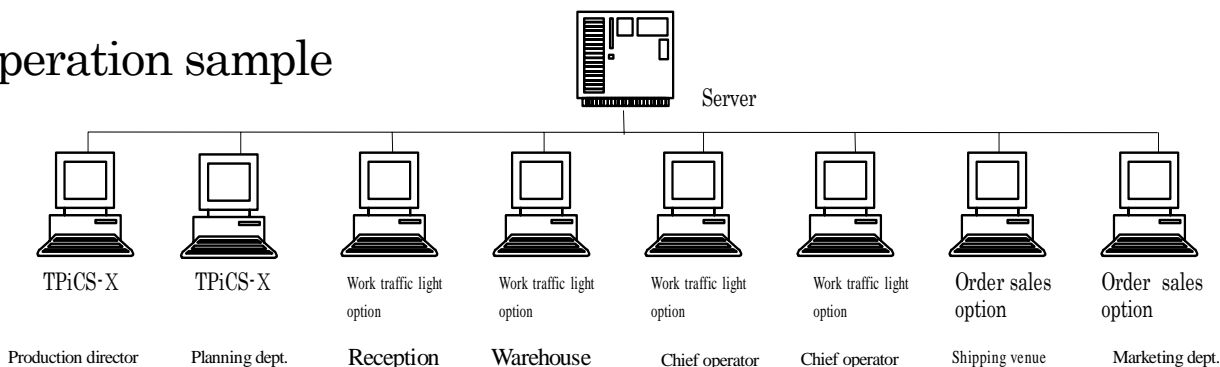
●Track record input in pre-process is reflected to a work traffic light screen of next process immediately and display in red on screen disappears.

●Daily report or backorder list is able to be created by office computer without troubling anyone.

Work traffic light option not only respond to the needs appeared on a surface, but solves a problem behind that, or removes a mess along a way to the problem so that real management can be executed, just like soil improvement.
When you look at an actual process for the above needs, you will experience that the scales fall from your eyes.

# Operation sample

Server

| TPiCS-X | TPiCS-X | Work traffic light option | Work traffic light option | Work traffic light option | Work traffic light option | Order sales option | Order sales option |
|---|---|---|---|---|---|---|---|
| Production director | Planning dept. | Reception | Warehouse | Chief operator | Chief operator | Shipping venue | Marketing dept. |

●Requirements calculation is executed by using **f-MRP** in Planning division based on an order/shipping plan data input by Sales division. Production plan of products, manufacturing plan of each in-house process, purchase plan of parts and materials are calculated.

●Plan of Parts and materials is calculated by **f-MRP** in consideration of variation of plan, and a slip based on the calculation is issued.

●Internal instruction is given by inputting 2~3 days plans that is before parts material has back up into backorders track record data.

●Foreman only has to concerns about getting the work displayed on Work traffic light screen done. All other duties of the foreman before that can be removed, that is, he or she does not have to worry about a mess related to change of a plan, parts trouble, pre-process and post-process, or clients' reason. He or she only has to concern about his/her staff, facilities, and work contents.

# Manufacturing number management option

## 1 Overview

There are three systems of manufacturing number management in Manufacturing number management option.

①Based on a concept that follows a conventional manufacturing number management
②Based on a management technique unique to *TPiCS*
③Management for a la carte that does not reflect to requirements calculation

It is hard to deal with changes because demand is changing severely, and the concept of "manufacturing number" become shackles crippling response to changes, if manufacutring is made in a very fast cycle.
Advantage of manufacturing number, that is, "easy to figure out" was bigger than that of disadvantage, that is, "really jumbled up when any change is made" at the time order of delivery was made 3~4 months in advance.
However, at the time products should be manufacured at a fast cycle, disadvantage of its weakness to change is bigger.
New manufacturing number management system unique to our company is developed for a user who cannot grow out of old management system in this age of fast changing.

## 2 Manufacturing number management unique to TPiCS

●Logistics of parts and fundamental instruction to process is calculated by a basic function of *TPiCS-X*, **f-MRP**.
●Manufacturing number plan is created in addition to planning function of **f-MRP**. These two plans are input and calculated separately, and connected to manufacturing number at the time of slip issuance. Or it can be connected to backorder data already announced after issuance of slip.
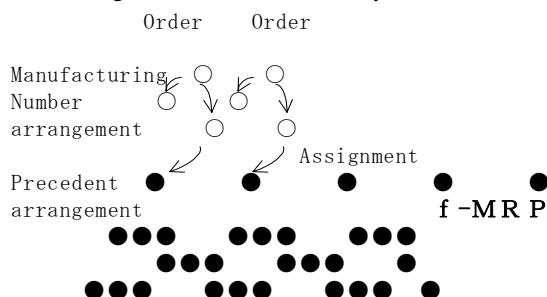If there is any manufacturing number plan not yet connected, it will be connected to issue slip.
In case there is no manufacturing number plan to be subjected, it will not be connected at an issuance of slip, but connected to backorder data at a development of manufacturing number plan instead.
●Addition, change and cancellation of a plan can be executed easily since it is based on planning function of **f-MRP**.
●A large amount of manufacturing number can be processed as it is able to process multiple manufacturing numbers collectively.
●Its ability to associate with order data enables association between manufacturing number and order number.
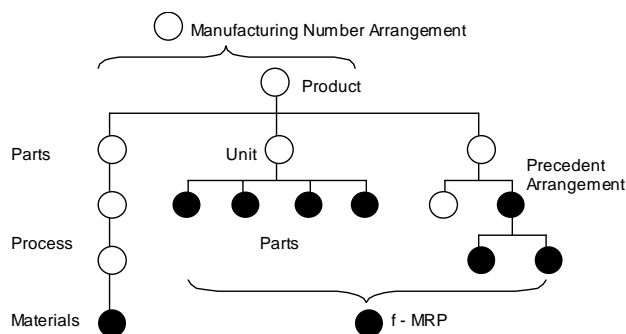●Which process and which parts of products to be exploded by manufacturing number can be set flexibly.



## 3 Manufacturing number management function that fits old system

●Material explosion is done by each product and manuracturing number.
●Which process should be exploded by manufacturing number can be set flexibly.

●Result of material explosion is written in a production plan table like other parts and process.



●**f-MRP** executes requirements calculation of child parts based on the result of parts explosion by Manufacturing number
●Requirements calculation of regular shipping, spare goods plan, or planning of products without manufacturing number can also be executed.
●Advance order as a middle unit can also be done.

## 4 Manufacturing number management function for a la carte dishes

●*TPiCS-X* can be operated without executing requirements calculation.
●Mixed method, such as requirements calculation is executed for only parts with repeatability, is also possible.

## 5 Progress reference function

●Manufacturing number plan that is already included in a plan is targeted.
●By specifying manufacturng number and pressing Enter key, plan data assigned to the manufacturing number and state of completion (progress of the process) is displayed.
●By using Windows' terminal service, progress can be checked from remote place, such as branch office.

## *TPiCS-X*

# Management of Special model parts option

## 1 Objective

This is used to manage optional parts in the case of manufacturing with parts not in regular sructure, such as when managing maker option (e.g. vehicle navigation system or airbag) or custom ordered specification.

## 2 Overview

(1) Register optional parts by each product and each option code.
(2) Option used to manufacture is input in a manufacturing plan table.
(3) Parts are arranged according to contents of option by only these operations. By inputting track record of manufacturing, optional parts are withdrawn automatically.
(4) Multiple parts can be registered in Option master. Minus parts can be handled as well.

# *TPiCS-X*
## Answer for Delivery time option

### 1 Object

As receiving new order or business enquiry, manufacturing period is calculated based on inventory of parts, purchase ordering state and stacks of load in current manufacturing plan.

### 2 Overview of calculation method

(1) Input quantity of product, expected delivery date and delivery venue, if necessary.
(2) If there is an inventory of the product, it is assigned, otherwise, it is calculated to target to manufacture.
(3) However, if the date is during confirmed period, it is assessed "Unable". If it is after the confirmed period, lower level of inventory is checked. If there is, the inventory is assigned. If there is not, it is calculated to manufacture it.
(4) It looks for the day with all "Able" by expanding the above (2)(3) calculation to all levels, even to the end parts.
(5) This calculation considers not only existing inventory, but also a delivery plan already received purchase order.
(6) It is also able to check if there still is some space in workload, if it is to be manufacured.

# *TPiCS-X*
## Archive management option

### 1 Objective

This is a trace option, such as lot management of matrerial and history management, that are required for ISO9000、Product Liability Law, drug legislation and so on. Material to be used or used inventory in-process can be registered as in-house process progress by inputting lot number by maker at an acceptance of raw material.

Besides, lot's material to be used to manufacture can be instructed by printing amount of material to be used as well as lot number on a work slip.

### 2 Overview of History management function

●At receiving process of material, lot number of the material is input, if necessary (based on the setting).

For a material that is set as necessary, it is unable to be input without entering a material lot number, which prevents input failure.

●When inputting track record of in-house process, lot numbers of raw material used can be conncected as specifying manufacturing by in-house lot number.

If some item among raw materials to be used requires lot management, it will be assigned automatically on 「First-in, First-out」 basis. Since a window for verification opens, it can be corrected as required before registration.

●One product or process can use multiple lots' material whereas one material can be shared by multiple products or processes. It enables multiple vs multiple process.

●After searching remaining lot for used material by 「First-in, First-out」 order, instruction is given by specifying 「materials to be used」 on a work slip.
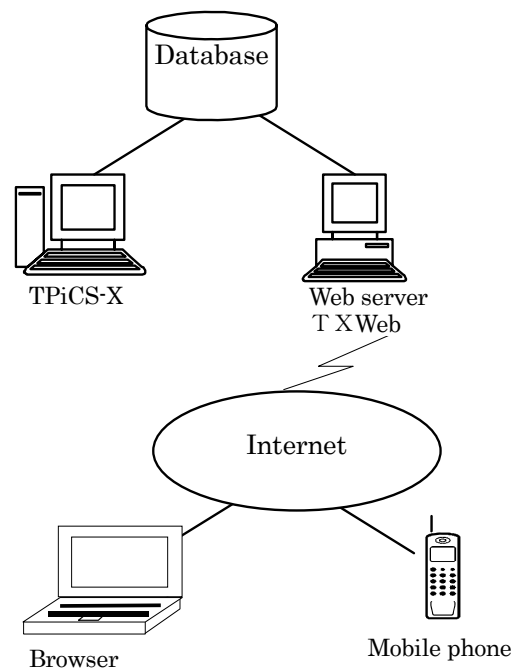
# *TPiCS-X*
## Web server option

### 1 Overview（mechanism of operation）

Assume that *TPiCS-X* Web server system is installed in Windows server (IIS) and *TPiCS-X* Web server system is able to operate *TPiCS-X* database on MS SQL Server or Oracle.

If *TPiCS-X* Web server is accessed from office computer browser or i-Mode cellular phone through Internet, *TPiCS-X* Web server takes the following process based on the information from browser.



### 2 Main functions

**①Inventory inquiry function**

Product inventory can be obtained by inputting product code. Current inventory, expected received quantity, assigned shippng quantity, minimum inventory and possible shipping quantity are displayed.

②Progress inquiry function

Progress status of each detailed work or parts that is planned by the manufacturing number can be obtained by specifying manufacturing number (Order number).
(Manufacturing number control option is required.)

③Registration of order

When sales person is out to visit customer, they can register order received from a customer through their cellular phone or notebook computer on the spot.（Order and sales management option is also required.）

Function to send order form, delay list and unofficial announcement data by e-mail is included in standard functions.

# Small Business Package

## 1 Objective

This system is packed by picking up some functions from *TPiCS-X* in order to provide easier and more reasonable system for users who says 「*TPiCS-X* is too difficult」 or 「I want more reasonable system instead of the one with many functions」.

## 2 Contents of package

・Order sales control function
  Shipping instruction list, Delivery form, Printing invoice, Controling deposit
・Control function of each masters
・Parts explosion, slip issuance function by simple arrangement
  Backorders, Inventory assignment, Collecting lot
・Manufacturing number cotrol function
・Track record inputting function
・Inventory control function
・Progress management function
・Cost management function
・Management by multiple currency
・Progress reference function
・3 Operation lisences for LAN
・Others

## 3 Management system

(1) Order form and work slip can be issued by inputting order data as manufacutred quantity of products is calculated by simple arrangement function and arranged quantity of parts is calculated from product's plan

(2) Manufacturing number data is created by order to explode manufacturing number.
  Manufacturing number explosion is executed only by setting manufacturing number control in case of unit or parts with low commonness, and collective arrangement in case of parts with high commonness. Besides, calculation of common parts can be done only by clicking [Parts explosion] button.

(3) It is also possible to use only manufacturing number and simple arrangement function, whereas use existing system for order control.

## 4 Other functions

After calculating arranged quantity and issuing slip, original function of *TPiCS-X* is used.

Therefore, various advanced functions realized by *TPiCS-X*, such as finding the lowest cost vendor from complicated unit price master and sending order data or delay list by e-mail can still be used.

# Supply Chain Management Kit

## 1 Objective

For manufacturer, parts supply route is a lifeline in some sense. Now, it is a commonsense for supply chain management that in order to realize speedy supply system for end users, [enhancement of manegement force] of cooperative companies and parts makers as parts suppliers is essential.
However, for less powerful cooperative companies, [enhancement of management force] is not an easy goal to achieve in reality.
Therefore, this Supply Chain Management Kit was commercialized in order to enable supply chain management of parent company through easy and reasonable [enhancement of management force] by letting cooperative companies use *TPiCS* small business pack.



TPiCS Supply Chain

Parent company

LAN   LAN   LAN

LAN   LAN   LAN

Cooperative company