

PMC: Processor Management Console

Hitachi PMC compared with IBM HMC, and Hitachi CPN Driver Code to modify IBM HMC

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1. Preface

PMC consists of the software described in the ;

Table 1-1 Software Component

No.	software	version
1	OS/2 Warp Connect 4	3.01 4.0
2	SOM	2.14 ¹
3	TCP/IP	3.0 4.0
4	DCAF	1.33 ²
5	CM/2 CS	4.11 4.1
6	IBM HMC Workplace	-
7	Hitachi C/W	-

- (1) PMC has the same workplace with HMC, which is provided by IBM.
 - The two types of CPN Class Objects derived from the original class object defined on the workplace represents Hitachi managed objects.
 - One is Hitachi CPN Managed object that means Physical CPN³, and the other is Hitachi CPN Image managed object that means a logical partition on MLPF.
- (2) The operation toward the Hitachi CPN is performed by dragging the Hitachi managed objects icon and dropping it onto the each Hitachi task icon on the workplace.
- (3) The basic HMC tasks described in Table 1-2 are provided to Hitachi as IBM workplace. Hitachi renames these tasks for standalone PMC. So, PMC has the same functions of these tasks.

Table 1-2 provided components

No.	area/ containers	contents
1	View Area	<ul style="list-style-type: none"> • Group • Exception • Active Tasks • Console Actions • Task List
2	Common tasks	<ul style="list-style-type: none"> • H/W Messages
3	Console Actions tasks	<ul style="list-style-type: none"> • View Console Events task • Save/ Restore Customizable Console Data task • Customize Console Date/ Time task • Customize Automatic Logon task • User Profiles task • Customize Product Engineering Access • HMC: Hardware Management Console Setting task • Logoff task • View Console Logs task • Backup Critical Console Data task • Analyze Console Internal Code
4	Daily Tasks	<ul style="list-style-type: none"> • Grouping
5	Logon	<ul style="list-style-type: none"> • Logon

- As IBM HMC has Books icon as online manuals, Hitachi also adds Books icon on View Area of the workplace. When Books container is opened, user will see PMC online manuals. Or a user will see Hitachi's manual in Books container as well as IBM HMC manual in case of MIX configuration.

[difference]

¹ PMCA also requires the same update of SOM.

² FSVP is planned to update DCAF to 1.33.

³ After this, a simple word "CPN" means physical CPN. A logical CPN is described "CPN Image".

- IBM HMC has Optical Network icon on View Area for analyzing ESCON optical network problems, but Hitachi PMC does not have such function. This means Hitachi's ESCON CH problem is not linked with IBM ESCON problem analyzer in MIX configuration.
- For standalone PMC, Hitachi changes some text strings of HMC. For example, the word "HMC" is changed to "PMC" such as messages box, window frame title of Table 1-2.
- Analyze Internal Code task is provided as an intention to update common code, i.e., the PMC workplace provided by IBM. But PMC FCO task named Convert Console Internal Code task provides the updating function of the common code as well as PMC C/W. Therefore, Analyze Console Internal Code task is no longer meaningful.

2. Hitachi CPN and CPN Image objects

2.1. Creation and Deletion of CPN objects

Regarding creation of Hitachi object icons, Hitachi C/W implements the same handling them as IBM does.

PMC searches Hitachi PMCA's by issuing NETBIOS broadcast packet on PMC-PMCA network periodically. When PMC receives a response from PMCA for the broadcast, Hitachi CPN object icon dynamically appears in the defined group on the PMC workplace.

- (1) PMCA customization to define CPN information.
 - The information consists of CPN name which will be stored in CSVP hard disk, and IP address for its PMCA.
 - After having defined the CPN, the related PMCA will be rebooted and PMCA will be connected with PMC as defined CPN. Then the CPN icon will be transferred to defined group.
- (2) NETBIOS-less protocol, i.e., PMCA detection by TCP/IP
 - The router is usually customized not to traverse NETBIOS packet to avoid unnecessary broadcasting packets over the next network. Hitachi C/W sends out TCP/IP packets to detect the PMCA for the case the customer does not want to customize the router to permit Hitachi NETBIOS packets.
 - Hitachi C/W, i.e., PMC searches Hitachi host entries in HOSTS file and transmit connection request packet to the PMCA.

[difference]

- (1) PMC does not provide a capability to define NETVIEW information, which IBM task defines as SNA network and address for CPC network management.
- (2) To change CPN information, PMCA re-customization and restarting HMC or PMC are necessary.
- (3) To remove CPN from defined group, removing PMCA and restarting HMC or PMC are necessary.
 - The objects integrated in user-defined group will be also removed.
- (4) The other tasks is allowed to be performed toward defined CPNs.

2.2. Creation and Deletion of CPN Image objects

After SYSIML, CPN Image icon appears in CPN Image group. This is the same manner for CPN Image icons creation as IBM does.

- (1) Hitachi C/W creates CPN Image objects after SYSIML completion of CPN based on the configured partitions on MLPF configuration file.
- (2) The CPN Image is also created for the one of basic mode CPN, i.e., non-LPAR mode.
- (3) After deactivating CPN, the related CPN Image objects will be destroyed and will disappear from PMC.
- (4) When the communication with the PMCA is lost, CPN Images related to the CPN will disappear from PMC.

2.3. Hitachi objects in user-defined group

A Hitachi objects in user-defined group is handled in the same manner as IBM objects by the IBM workplace.

- (1) When a Hitachi CPN object is undefined, the icon is removed from user-defined groups including it.
- (2) When a Hitachi CPN Image object is destroyed by SYSIML, the icon will be removed from user-defined groups including it.
- (3) IBM workplace saves Hitachi object information as back-up data.
 - Once a Hitachi object was put into a user-defined group, it will be restored in the user-defined group after it is re-created or re-defined.
 - These information is saved by Backup Critical Console Data Task of IBM workplace.

2.4. Status Color of Hitachi CPN and CPN Image objects

Hitachi CPN or CPN Image has similar state attributes to IBM, excepting power-save state because Hitachi machine does not have such function.

- (1) The background color of Hitachi object icon is changed by each CPN or CPN Image state.
- (2) The background color of Hitachi object icon is also customized by HMC Setting task included in IBM workplace.
- (3) The customized color is commonly reflected to both IBM and Hitachi icons.

2.5.Detail Window of Hitachi CPN and CPN Image

When a Hitachi CPN or a CPN Image icon is double-clicked, the detail explanation window for Hitachi machine is displayed.

- (1) Instance information:
 - current status of CPN or CPN Image: when the status indicates “status check”, “exception” or “alert”, the detail status is shown by double-clicking this field.
 - the activation file for activating itself: this information can be changed in the detail window.
- (2) last task information what task was performed
- (3) acceptable status:
 - customizable to suppress changing background color of itself, even if it comes to a status, such as power-off
- (4) product information:
 - compatible mode with IBM machine, such as 9672
 - machine serial, manufacturer, plant of manufacture
 - LAN address, IP address
- (5) change options
 - HMC has a character to put a relation of activation profile and user-defined group where CPN or CPN image is defined.
 - By Change Options View, an operator can assign the desired profile in which the CPN or of CPN image should be activated.

[difference]

- original Hitachi machine type, such as PILOT A5H⁴.
- Hitachi does not display some IBM original product information, such as SNA and CPC location.
- IBM CPC image detail window has some fields for MVS version, OS name, and SYSPLEX name, but Hitachi's image detail window does not have them.⁵

3. Tasks and Task Container

IBM puts some tasks into a container, e.g., Daily Tasks. Hitachi defines some same name containers for same purpose jobs and puts Hitachi tasks into it. For Hitachi specific tasks, Hitachi defines the different name containers.

- (1) Tasks and containers are controlled by the workplace user profile management.
- (2) A user can see proper task container icons in Task List of view area.
- (3) A user can see proper task icons of Hitachi proper user level in the task container.
- (4) For Daily Tasks and Recovery Tasks, Hitachi basically puts the same user level for each task as IBM does.
- (5) In MIX configuration:
 - When a Hitachi service engineer is defined as service level for Hitachi, not as service level for IBM, he will see only Hitachi service tasks icons in Service Tasks container.
 - If a Hitachi console action task is named commonly to IBM, one icon is displayed for both IBM and Hitachi tasks. When the icon is double-clicked, Hitachi and IBM window frames will be displayed simultaneously.
 - If a Hitachi task in a task container is named commonly to IBM, one icon is displayed in the container for both Hitachi and IBM tasks. When IBM CPC icons and Hitachi CPN icons are dropped onto a task icon, Hitachi and IBM window frames will be displayed simultaneously. Of course, Hitachi task will give a service for Hitachi CPNs.

4. Communication with PMCA

[difference]

The implementation of communication with PMCA/SVP is internal implementation, so it does not make any difference from

⁴ To identify compatible machine from IBM machine, System Installation frame of F7 SVP or of F9 SVP is updated to have a field setting OEM model name. This field will not be set up at the shipment from GPCD. HDS, CPX, and OLV should set each machine type as its product to display the original machine type in a detail window of each CPN icons.

⁵ Further investigation is necessary for SVP to get these information.

IBM with respect to user interface.

- (1) Base protocol
 - Hitachi uses DSOM based on TCP/IP to communicate with PMCA.
 - IBM uses SNA protocol to communicate with each SE: Service Element..
- (2) TCP/IP host entries used Hitachi programs are fixed as follows:
 - Up to 8 entries for Hitachi C/W of PMC/ HMC should be name PMC11-81.
 - Up to 32 entries for PMCAs should be named PMCAA01-32.
 - A pair of IP address and host name for every Hitachi node should be pre-defined in HOST file in each node. The nodes mean modified HMC, PMC and PMCA.
 - Each IP address for these host name should be defined during their installation and setup to fit the customer environment.
- (3) DSOM to communicate between PMC/ HMC and PMCA.
 - PMCA provides its DSOM class library to enable Hitachi C/W to call the function of controlling CPN.
 - DSOM implementation repository for Hitachi communications should be generated during the first installation of Hitachi C/W onto a IBM HMC or during the first installation of PMC.
 - The generated DSOM implementation repository should be retrieved to the other nodes, i.e., secondary modified HMCs, secondary PMCs and PMCAs during their installation and setup.
- (4) Health check
 - PMC and PMCA sends a NETBIOS health check packet to notify its alive status each other periodically.
 - When PMC does not receive PMCA's health check packet for a given period, PMC changes CPN icon color to UNLINK status.
 - Some router used by a customer does not allow a NETBIOS packet to go through. Hitachi C/W searches defined Hitachi nodes of not receiving a response for NETBIOS packet and sends TCP/IP packet to a un-detected node. And then, Hitachi C/W establishes a connection to check each other periodically.
- (5) Link status
 - When Hitachi C/W detect a timeout of receiving a alive packet, Hitachi C/W changes the related CPN background color to indicates "communication not active". Meanwhile, Hitachi C/W puts a H/W message on PMC/ HMC icon to indicates which PMCA communication is lost.

5. Grouping

The grouping task is provided by the IBM workplace and it is allowed to put the same class objects into one user-defined group.

- (1) When a group including the objects of the same class is dropped onto a task icon, the task performs its jobs for the objects simultaneously.
- (2) When Hitachi C/W is installed on IBM HMC, the grouping is allowed to bundle Hitachi managed objects with IBM managed objects.
 - For the same job as IBM task, Hitachi C/W defines some its task to have the same name as IBM task in the same task bar, because the workplace represents one task icon for the same name tasks.
 - Users can perform a job toward Hitachi CPNs and IBM CPCs simultaneously by dropping the group onto a task of the same name.
- (3) Once Hitachi CPN objects or CPN Image objects are integrated into a user-defined group, grouping function of IBM workplace keeps the information by their names.
 - When CPN or CPN Image object of the previous name is recreated on IBM workplace, a user will see the icon in the user-defined group after restarting HMC/ PMC.

[difference]

- (1) Hitachi C/W defines defined CPNs, undefined CPNs and CPN Images groups as default.
 - IBM uses the term of "CPC", and Hitachi uses "CPN".
 - IBM HMC defines undefined CPCs, defined CPCs and CPC Images groups for IBM CPCs as default.
 - To enable a user make a group including Hitachi CPNs and IBM CPCs, a user should add Hitachi CPN icons to a user-defined group including IBM CPCs.
 - Same is it for Hitachi CPN Images if necessary.

6. User Profiles and LOGON window

IBM workplace provides Hitachi with User Profiles task and with LOGON window.

- (1) The user levels are those of IBM HMC.
- (2) User Profiles task enables an administrator to give a person each user level for the workplace basic tasks, Hitachi tasks, and IBM tasks.
- (3) When a user defined to be a level for Hitachi machines logs on PMC/HMC, the proper Hitachi task icons and task containers including them for the given level will appear on the workplace.
- (4) User profiles, which is implemented by IBM, is designed to have multiple vendor space, i.e., one is IBM and the other is Hitachi. Each user id can be registered separately, that is, what user level should be assigned to IBM space and what user level should be assigned to Hitachi space. For example, if a person would be responsible for IBM space as SYSTEM PROGRAMMER and responsible for Hitachi space as OPERATOR, the multiple vendor space makes it possible.

[difference]

- (1) The user profile window has a notebook page for Hitachi user level setting.
 - Hitachi HMC, i.e., PMC has one user profile window which consists of BASE page and HITACHI page. BASE page controls user profiles for the tasks listed in Table 1-2 provided components.
 - In MIX configuration, there are two user profile windows, one is IBM HMC original window to customize user profiles for IBM tasks and the other is the window of BASE and HITACHI pages. The BASE page reflects user profiles defined in the IBM HMC original window.

7. Hardware Messages

PMC uses Hardware Message function included in IBM workplace. This makes Hardware Messages icon pending color of LOGON window and of Task Area when Hitachi C/W puts its messages to this function.

- (1) First, Hitachi PMC or Hitachi C/W itself puts its messages if it detects an error, for example PMC found a TIMEOUT of PMCA health check.
- (2) Second, PMCA requests PMC to record the following events as Hardware Messages related to CPN.
 - PMCA periodically checks status of CPN sent from SVP which means MCD console indicator field. PMCA generates this message and sends it to PMC.
 - PMCA gets some part of MAR log from FSVP remote service function. PMCA gets some message string and MAR id from a MAR log file and sends it to PMC. When this type message with suspected reference code is double-clicked by a service level operator, the detail window for this message displays some explanation gotten from SVP internal RC dictionary.
- (3) LPAR Messages
 - MLPF Hypervisor sends a message to PMC device⁶, so that SVP transfers it to HMC/ PMC through PMCA as LPAR message.
 - LPAR messages are also to be pending on the related CPN object icon. When the CPN object is dropped on to H/W Messages icon, they are shown as “Logical Partition” and the LPAR message is shown by double clicking the message or by pressing detail button after selecting the message. LPAR messages are filtered not to store information messages or warning messages by their level.
- (4) Hitachi messages are displayed in Hardware Messages window frame of IBM workplace when either Hitachi CPN icon, CPN Image icon or Hitachi PMC is dropped onto Hardware Messages icon.
- (5) H/W Messages of IBM workplace does not store the messages of CPNs. So, when the connection of PMC and PMCA is established, all messages stored in PMCA are sent to PMC and they are stored into the memory buffer of Hardware Messages.

8. OS Messages

Hitachi C/W is allowed to initiate OS Message pending indication in IBM workplace. This changes OS Messages icon pending color of LOGON window and of Task Area when Hitachi C/W receives OS messages from CPN.

- (1) Hitachi PMC or Hitachi C/W stores OS messages from CPN via PMCA.
- (2) To display Hitachi's CPN OS messages, Hitachi has a separate window frame from IBM OS Messages window frame.
- (3) When Hitachi CPN Image icons are dropped to OS Messages icon, Hitachi's window will display Notebook that show each page per CPN Image.

⁶ MLPF added a specific device to control PMC, which is named Hyper-PMC. This hyper-device information including PMC-device is passed to Hypervisor from SVP. This device consists of 2 snums and 1 broadcaster. PMC/PMCA send a command to Hypervisor through this snum type device. A hardware message is sent out to PMC through broadcaster type device.

- (4) Both Hitachi CPN and IBM CPC icons are dropped to OS Messages icon in MIX configuration, two windows will be displayed.
- (5) Hitachi's window has same functions as IBM does.
- (6) When the connection of PMC and PMCA is established, all messages stored in PMCA/SVP are sent to PMC.
- (7) The messages pending color on the icon background is indicated when a hold message or a priority message comes to HMC/ PMC. That is, when the CPN has only normal messages, the background does not show the color indication.

9. Console Actions Task

9.1. Save/ Restore Customizable Console Data Task

This task saves Hitachi customizable data as its job. And it also restores Hitachi customizable data.

9.2. Domain Security Task

~~Regarding Domain Security, Hitachi adopts the same idea as IBM does.~~

~~~[difference]~~

- ~~(1) IBM workplace does not include the IBM's domain security window frame.~~
- ~~(2) Hitachi C/W has Domain Security window frame to communicate with Hitachi's PMCA.~~
- ~~(3) PMC passes its domain name to PMCA during the object definition sequence.~~
- ~~(4) In case of 2 PMCs, the defined CPN will appear on the other PMC workplace as long as the other PMC has the same domain name.~~
- ~~(5) Hitachi C/W communicates with only PMCA having the same domain.~~
- ~~(6) Undefined CPN appears in the undefined CPN group of every PMCs, which have different domain names.~~
- ~~(7) In case of MIX configuration, Hitachi's domain security window is separate from IBM's domain security.~~
- ~~(8) IBM Domain Security has a password setting field, but Hitachi Domain Security does not have that. The reason is that Hitachi's communication with PMCA is based on DSOM that requires the implementation repository file between server/client. The suspected reason why IBM requires a password is the communication base that is implemented by SNA LU 6.2.~~

Hitachi stopped this plan.

- (1) As stated in chapter 4 Communication with PMCA, NETBIOS protocol used for communication with PMCA should have a group name "HTCPMCAAAAAAAAAA", or "HTCPMCAAAAAAAAA" for communication with another PMC/ HMC. These group name is a kind of domain.
- (2) Since Hitachi does not use SNA protocol, any specific domain name for SNA is not defined for Hitachi.

### 9.3. View Console Information Task

[difference]

~~PMC has a window frame to display Hitachi information.~~

- ~~(1) To be determined what information should be displayed.~~
- ~~(2) Hitachi display a separate window from IBM View Console Information task, when this icon is double clicked.~~

Hitachi stopped this plan.

- (1) The version information is viewed by a utility in trouble shooting folder on OS/2 desktop of HMC/ PMC. The trouble shooting folder may exist in Maintenance folder on OS/2 desktop.

### 9.4. Change Console Internal Code Task

[difference]

Hitachi provides this task to revise up Hitachi C/W of PMC/HMC.

- (1) This task will be designed based on FSVP FCO window frame.

### 9.5. Convert Console Internal Code Task

[difference]

Hitachi provides this task to apply some patches to Hitachi C/W of PMC/HMC.

- (1) This task will be designed based on FSVP FCO window frame.

### 9.6. Analyze Console Internal Code Task

This task is included in IBM workplace.

- (1) This task is used to apply fixes to IBM workplace of PMC.

## 9.7.Alternate PMC Setting

[difference]

~~This task is planned to display nodes configuration on PMC/PMCA network.~~

~~(1) The detail design is to be determined.~~

Hitachi stopped this plan.

## 9.8.Console Bell Clear Task

[difference]

~~Standalone PMC has a sound card to notify a state of emergency:~~

~~(1) When a CPN falls into check status, exception status, or alert status that are customized as unacceptable in each CPN object detail window "2.5 Detail Window of Hitachi CPN and CPN Image", PMC sounds the bell.~~

~~(2) PMC provides a task to stop the ringing bell.~~

Hitachi stopped this plan.

## 9.9.PMC Installation Task

[difference]

~~This task is planned to add PMC options.~~

~~(1) The detail design is to be determined.~~

Hitachi stopped this plan.

- (1) As stated in chapter 16 Web Service and chapter 17 Management API, Hitachi C/W is implemented to use the information customized by IBM setting. Therefore, the current Hitachi C/W does not need the specific information that should be optionally customized by this task.

## 9.10.Customize Console Remote Service Task

[difference]

~~Hitachi provides this task to customize customer information for the service of Hitachi C/W of PMC/HMC.~~

~~(1) This tasks will be designed based on FSVF PSG window frame.~~

Hitachi stopped this plan.

- (1) Hitachi functionality does not includes remote service functions for Hitachi C/W itself. Therefore, this kind of service customizations is not supported.

## 9.11.Customiza User Controls

IBM provides the customization of what icons should be displayed for each user:

- what managed objects should be displayed for each user id and
- what tasks should be displayed. should be dispalyed for each usre id.

[difference]

- (1) Hitachi does not have the plan of this task.

## 10. Daily Tasks

### 10.1.operations

These tasks perform the jobs described in Table 10-1 and Table 10-2 in basic mode of activation profile.

These tasks perform the jobs described in Table 10-3 and Table 10-4 in LPAR mode of activation profile.

- Activate Task
- Deactivate Task
- Reset Normal Task

The following task is also available as a daily task.

- Activity Task

### 10.2.Activate Task

In the sense of using IBM HMC, "Activate" means power-on, power-on reset SYSIML and loading operating system from the proper stage. And this activation is accompanied with the selected activation profile which is related to a group in which a CPN or a CPN image is included. The profile can be applied to a CPN or a CPN image in a group by the option in its detail window as stated in chapter 2.5 Detail Window of Hitachi CPN and CPN Image.

[first release]

- (1) A CPN detail window provides a selection of reset profiles to activate CPN object.
- (2) Activating CPN image in LPAR mode is done based on the LPAR related profile information held by MLPF.  
[enhanced release 8x-07]
- (3) A CPN image detail window provides a selection of profiles in LPAR mode:
  - When an image profile is selected, the LPAR will be activated in the sense of “activate” by LPAR frame operation on MCD. And, if the LPAR is already activated, the LPAR will be re-activated after it is deactivated. Auto IPL will be done according to the LPAR configuration if auto load is specified in the image profile.
  - When a load profile is selected, an operating system will be loaded on to the partition by using the information of the specified device and load parameter defined in the load profile.

### 10.3. System Activity Task

This task displays the similar window to IBM's, in which a bar indicates each CPN busy rate.

- (1) This displaying is intended to plural CPNs, e.g., parallel CPNs.
- (2) When a bar is clicked, the detail window of CPN busy rate is displayed.
- (3) Up to four detail windows of CPNs are allowed to be displayed at a time.

[difference]

- (1) The detail activity window is based on FSVP System Activity frame.
- (2) Customize Activity Profile is not a separated task.
  - IBM activity profiles is customized by a task in CPC Customization tasks which is separated from this “Activity” task.
  - Hitachi integrates the function to customize activity profiles into this “Activity” task.
  - The activity profiles can be retrieved from FSVP as default, but expanded profiles to fit the window on HMC/PMC are stored in HMC/PMC.
  - The profile data is backed up and restored during HMC/PMC FCO of Hitachi code.

Table 10-1 Operation to Basic mode CPN

| No. | equipment status | Power Off<br>(No Power)                                                        | Power On complete<br>(Not Active)                                  | SYSIML complete<br>(Not Operational)                               | IPL complete<br>(Operational)                                      |
|-----|------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|
| 1   | Activate         | Power On<br>SYSIML<br>→Not Operational<br>IPL at AutoLoad mode<br>→Operational | SYSIML<br>→Not Operational<br>IPL at AutoLoad mode<br>→Operational | SYSIML<br>→Not Operational<br>IPL at AutoLoad mode<br>→Operational | SYSIML<br>→Not Operational<br>IPL at AutoLoad mode<br>→Operational |
| 2   | Deactivate       | none                                                                           | Power Off<br>→No Power                                             | Power Off<br>→No Power                                             | Power Off<br>→No Power                                             |
| 3   | Reset Normal     | -                                                                              | -                                                                  | -                                                                  | -                                                                  |
| 4   | Reset Clear      | -                                                                              | -                                                                  | -                                                                  | -                                                                  |
| 5   | Start            | -                                                                              | -                                                                  | -                                                                  | -                                                                  |
| 6   | Stop             | -                                                                              | -                                                                  | -                                                                  | -                                                                  |
| 7   | PSW Restart      | -                                                                              | -                                                                  | -                                                                  | -                                                                  |
| 8   | Load             | -                                                                              | -                                                                  | -                                                                  | -                                                                  |

Table 10-2 Operation to Basic mode CPN Image

| No. | equipment status | Power Off<br>(non-existence) | Power On complete<br>(non-existence) | SYSIML complete<br>(Not Operational)                               | IPL complete<br>(Operational)                                      |
|-----|------------------|------------------------------|--------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|
| 1   | Activate         | -                            | -                                    | SYSIML<br>→Not Operational<br>IPL at AutoLoad mode<br>→Operational | SYSIML<br>→Not Operational<br>IPL at AutoLoad mode<br>→Operational |
| 2   | Deactivate       | -                            | -                                    | Sysres Clear<br>→Not Operational                                   | Sysres Clear<br>→Not Operational                                   |
| 3   | Reset Normal     | -                            | -                                    | Sysres Normal<br>→Not Operational                                  | Sysres Normal<br>→Not Operational                                  |
| 4   | Reset Clear      | -                            | -                                    | Sysres Clear<br>→Not Operational                                   | Sysres Clear<br>→Not Operational                                   |
| 5   | Start            | -                            | -                                    | Start<br>→Operational                                              | none                                                               |
| 6   | Stop             | -                            | -                                    | none                                                               | Stop<br>→Not Operational                                           |
| 7   | PSW Restart      | -                            | -                                    | Restart<br>→Operational                                            | none                                                               |
| 8   | Load             | -                            | -                                    | IPL<br>→Operational                                                | IPL<br>→Operational                                                |

Table 10-3 Operation to LPAR mode CPN

| No. | equipment status | Power Off<br>(No Power)            | Power On complete<br>(Not Active) | SYSIML complete<br>(Not Operational) | Hypervisor ready<br>(Operational) | Activate complete<br>(Operational) | IPL complete<br>(Operational) |
|-----|------------------|------------------------------------|-----------------------------------|--------------------------------------|-----------------------------------|------------------------------------|-------------------------------|
| 1   | Activate         | Power On<br>SYSIML<br>→Operational | SYSIML<br>→Operational            | SYSIML<br>→Operational               | SYSIML<br>→Operational            | SYSIML<br>→Operational             | SYSIML<br>→Operational        |
| 2   | Deactivate       | none                               | Power Off<br>→No Power            | Power Off<br>→No Power               | Power Off<br>→No Power            | Power Off<br>→No Power             | Power Off<br>→No Power        |
| 3   | Reset Normal     | -                                  | -                                 | -                                    | -                                 | -                                  | -                             |
| 4   | Reset Clear      | -                                  | -                                 | -                                    | -                                 | -                                  | -                             |
| 5   | Start            | -                                  | -                                 | -                                    | -                                 | -                                  | -                             |
| 6   | Stop             | -                                  | -                                 | -                                    | -                                 | -                                  | -                             |
| 7   | PSW Restart      | -                                  | -                                 | -                                    | -                                 | -                                  | -                             |
| 8   | Load             | -                                  | -                                 | -                                    | -                                 | -                                  | -                             |

Table 10-4 Operation to LPAR mode CPN Image

| No. | equipment status               | Power Off<br>(non-existence) | Power On complete<br>(non-existence) | SYSIML complete<br>(non-existence) | Hypervisor ready<br>(Not Active)                                     | Activate complete<br>(Not Operational)                                             | IPL complete<br>(Operational)                                                  |
|-----|--------------------------------|------------------------------|--------------------------------------|------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| 1   | Activate<br>(by image profile) | -                            | -                                    | -                                  | Activate<br>→Not Operational<br>IPL at AutoLoad mode<br>→Operational | Deactivate<br>Activate<br>→Not Operational<br>IPL at AutoLoad mode<br>→Operational | Deactivate<br>Activate<br>→Operational<br>IPL at AutoLoad mode<br>→Operational |
| 2   | Activate<br>(by load profile)  | -                            | -                                    | -                                  | none                                                                 | IPL<br>→Operational                                                                | IPL<br>→Operational                                                            |
| 3   | Deactivate                     | -                            | -                                    | -                                  | none                                                                 | none                                                                               | Deactivate<br>→Not Active                                                      |
| 4   | Reset Normal                   | -                            | -                                    | -                                  | none                                                                 | Reset Normal<br>→Not Operational                                                   | Reset Normal<br>→Not Operational                                               |
| 5   | Reset Clear                    | -                            | -                                    | -                                  | none                                                                 | Reset Clear<br>→Not Operational                                                    | Reset Clear<br>→Not Operational                                                |
| 6   | Start                          | -                            | -                                    | -                                  | none                                                                 | Start<br>→Operational                                                              | none                                                                           |
| 7   | Stop                           | -                            | -                                    | -                                  | none                                                                 | none                                                                               | Stop<br>→Not Operational                                                       |
| 8   | PSW Restart                    | -                            | -                                    | -                                  | none                                                                 | Restart<br>→Not Operational                                                        | none                                                                           |
| 9   | Load                           | -                            | -                                    | -                                  | none                                                                 | IPL<br>→Operational                                                                | IPL<br>→Operational                                                            |

## 11. CPN Recovery Tasks

### 11.1. Single Object Operations Task

This task is for using MCD's desktop operation directly by dropping CPN object icon.

- (1) refer to SVP console operation guide of each CPN model.
- (2) This task invokes DCAF utility.
- (3) DCAF target on PMCA is customized to accept only a connection request from PMC side network.<sup>7</sup>
- (4) Before PMC connects a DCAF with PMCA, PMC sends to PMCA the current user level of PMC's logon operator. Then, PMCA forcibly changes FSVP desktop user level to the given level. After that DCAF connection is established.
- (5) IBM HMC DCAFinng permits 4 connections at most. Hitachi also has the same number restriction. In case of MIX configuration, total number of IBM and Hitachi is limited in 4 connections.

### 11.2. operations

These tasks perform the jobs described in Table 10-1 and Table 10-2 in basic mode of activation profile.

These tasks perform the jobs described in Table 10-3 and Table 10-4 in LPAR mode of activation profile.

- Start Task
- Stop Task
- Reset Normal Task
- Reset Clear Task
- PSW Restart Task<sup>8</sup>
- Load Task

### 11.3. CPN Bell Clear Task

[difference]

~~When PMCA rings a bell of CPN error indication, PMC provides a function to stop the bell of CPN by this task.~~

~~— Bell Clear task in Console Actions is to stop the bell of PMC itself.~~

Hitachi stopped this plan.

- (1) CD without PMCA functionality usually sounds alarm in detecting a serious status of the CPN, but CD customized to be a PMCA discards this sounding. HMC/ PMC does not have sound alarm function, neither.

### 11.4. PMCA Shutdown Task

[difference]

PMCA is always power-on state even if CPN is power-off status, because PMCA needs to receive a command based on TCP/IP and DSOM from LAN network. When PMCA is required to be power-off somehow, an operator should use this task and shutdown PMCA to avoid disk clash and so forth.

## 12. CPN Operation Customization Tasks

### 12.1. Customize Activation Profiles Task

IBM's activation profile consists of reset files, image profiles, and load profiles.

[difference]

Hitachi machine has similar configuration system, but the limitation of each file count makes a difference.<sup>9</sup>

- (1) reset profile
  - A reset profile is corresponding to a SYSCNF file.
  - The number IBM's reset profiles is up to 64, but Hitachi obviously has the limitation: F7 has 7 SYSCNF files and

<sup>7</sup> At the point of network, PMCA has 2 other LAN networks, one is with SVP and the other is for CPN remote service. DCAF target seems to accept only a network after rebooting itself. So, this might make PMCA unable to connect DCAFinng of CPN remote service through PMCA. GPCD is investigating the possibility for PMCA to accept the connection request by the remote service through a modem without rebooting PMCA.

<sup>8</sup> The status color of a CPN Image will not be changed after restarting it, because Hypervisor can not know whether OS could be successfully operational after rebooting it. Therefore, Hypervisor does not inform PMC of the status change.

<sup>9</sup> IBM HMC allows a user to assign each activation profile to a CPC in each user-defined group. Though Hitachi CPN can afford to have each activation profile name for each user-defined group, the user should pay attention to common use of load profile.



F9 has 15 SYSCNF files.

- PMC handles each SYSCNF file name.
- The contents in SYSCNF is customized through Hitachi's Activation Profiles task. It has the same type of notebook for a user as IBM's.
- IBM's Activation Profile task has a notebook page to change the order to activate each LPAR partition, but Hitachi does not have such function. This depends on MLPF activation system.
- The selected reset profile can be assigned by "Change Options" of CPN detail window, which makes a relation of CPN object and a user-defined group where the object is included.

[enhanced release 8x-07]

- Up to 64 byte description can be added for each reset profile.

(2) image profile

- A image profile is corresponding to a LPARCNF, which actually exists in a SCDS file.
- Since a LPARCNF in a SCDS is customized through Hypervisor of MLPF which is requested to customize it from PMC, PMC handles a image profile for each partitions after Hypervisor is ready, i.e., physical CPN is SYSIMLed.
- IBM provides a function of editing one image profile for each LPAR without SYSIML of physical CPC, but Hitachi provides editing one image profile for each LPAR by the LPAR name after MLPF is ready.
- No description can be added for each image profile.

(3) load profile

[first release]

- IBM HMC allows a user to define plural load profile files related to a reset profile or to a image profile. At this point, Hitachi allows a user to define a single load profile because Hitachi machine, i.e., F7 SVP, F9 SVP, and MLPF have only single file. This makes load profile information commonly used by all activation profiles.
- The information of load address and load parameter are set to CNSCNF file for basic mode or to LPRCNF file for LPAR mode as auto-load function.

[enhanced release 8x-07]

- Multiple load profiles are available for LPARs. Load profile is not available for Basic mode CPN.
- The selected load profile can be assigned to each LPAR by "Change Options" of CPN image detail window, which makes a relation of CPN image object and a user-defined group where the object is included.
- Up to 64 byte description can be added for each load profile.
- The load profile files are stored in unused are of CSVP harddisk and can be commonly used by multiple HMC/PMCs.
- Since the unused are is limited, the maximum number of load profiles depends on each machine type as follows:
  - ⇒ 19 profiles for F7A/ F7B,
  - ⇒ 31 profiles for F7C/ F7E,
  - ⇒ 15 profiles for F9 (no matter which in Single/ Separate modes) and
  - ⇒ 31 profiles for F10.

(4) automatic load of Basic mode CPN

- When auto load is specified, PMC sets AutoLoad panel switch of SVP before initiating power-on of CPN. Then F7 and F9 automatic load function will be run by using least number IP and related load parameter after SYSIML of CPN.

(5) automatic load of LPAR mode CPN

- When auto load is specified in LPRCNF file or CPN image file, MLPF automatic load function will be run based on its theory.

## 12.2.View Activation Profiles Task

For the user of the level of not permitted to change activation profile, this task provides to view them.

[difference]

- (1) IBM provides a function to delete a activation profile, but Hitachi does not have such function because Hitachi's profiles count is fixed.

## 12.3.Automatic Activation Task

~~IBM provides a function to activate CPC automatically after HMC is power on.~~

- ~~(1) Hitachi is investigating this implementation.~~

[difference]

IBM's Automatic Activation task is for customizing whether activating CPC during restoring CPC power after its power-save status should be enabled or disabled. Since Hitachi CPN does not have power-save status, PMC need not to have this function.

#### 12.4.Scheduled Operation Task

IBM provides a function of activating CPC and deactivating CPC with the time sequence of CPC license internal code change.

[difference]

Since Hitachi's remote service is done by SVP itself, Hitachi's scheduled operation task will not have any relation with CPN microcode update.

- (1) ~~Hitachi is investigating this implementation.~~ Hitachi stopped this plan.

#### 12.5.Customize SVP Date/ Time Task

Hitachi PMC also provides a function of customizing each SVP TOD, which is used for setting CPN TOD during SYSIML.

[difference]

- (1) IBM HMC TOD is synchronized with the TOD of a selected CPC's service element when CPC is connected to SYSPLEX timer, but Hitachi PMC does not have such synchronization. Because F7 or F9 SVP TOD is not synchronized even if CPN is connected SYSPLEX timer.
- (2) In MIX configuration, IBM C/W synchronizes the PC TOD with its CPC. This naturally makes Hitachi C/W synchronized SYSPLEX timer.

### 13. Object Definition Tasks

~~To define CPN on PMC, Hitachi also has the following tasks. Refer to "2.1 Creation and Deletion of CPN objects" for their explanation.~~

- ~~—Add Object Definition Task~~
- ~~—Change Object Definition Task~~
- ~~—Remove Object Definition Task~~

Hitachi stopped this plan.

- Object information such as IP address is set during PMCA installation procedure.

### 14. Service Tasks

#### 14.1.Back up CPN Critical Data Task

~~The customizable data, such as SYSCNF file, for a CPN is stored to PMC's external drive by this task. The data includes all SCDS of a CPN.~~

SCDS Copy task takes the place of this task.

#### 14.2.Hard Disk Restore Task

~~The customizable data, such as SYSCNF file, for a CPN is restored back to SVP hard disk from PMC's external drive by this task. The data includes all SCDS of a CPN.~~

SCDS Copy task takes the place of this task.

#### 14.3.CPN Remote Service Task

[difference]

PMC does not provides any functions for CPN remote service.

- (1) The current FSVP remote service is used for CPN as PMCA is based on FSVP.
- (2) When SCD is connected to CPN, the CPN remote service is done through SCD.
- (3) In case of no-existence of SCD, PMCA remote service will work.

#### 14.4.Problem Analysis Task

[difference]

PMC does not provides any specific window frames as CPN problem analyzing tasks. PMCA is based on FSVP and FSVP maintenance window frames should be used for CPN maintenance. In case of investigating CPN problem further through PMC, Single Operation task, i.e., DCAFinG function should be used.

### 15. CPN Configuration Tasks

### 15.1.SCDs Copy Task

IBM HMC and SE have a role of distributing IOCDS file generated on a CPC to another CPC. HCD program initiates the distribution in SYSPLEX environment. Hitachi does not have any function related to this distribution. Instead of the IOCDS file distribution by HCD, Hitachi provides a task named SCDs Copy task whose functions are as follows;

[difference]

- (1) This task gets a SCDs file and its management information generated on a Hitachi CPN.
- (2) This task put the file to a targetted Hitachi CPN.
- (3) One solution is direct transfer, that is a user specifies a Hitachi CPN as a source and another CPN as a destination.
- (4) Another solution of this distribution is via a buffer of HMC, that is a user specifies its harddisk or an external disk such as optical diskette as a buffer to store the IOCDS file from a CPN. Then, the user specifies a target CPN to restore the file. This may be used as a saving IOCDS file into an external disk.

## 16. Web Service

This feature enables the remote operation for Hitachi CPNs with web browser. First, User accesses to Hitachi page on HMC with web browser, and login to HMC. And then, he can manage Hitachi CPNs and LPARs with web browser. The following shows the characteristic.

- (1) This feature is available for only modified HMC.
  - User interface on Hitachi web browser is similar to IBM web page.
  - On-line manual of Hitachi page has a link to IBM manual top page.
- (2) The managed objects are CPN, CPN Image, Defined CPNs Group and CPN Images.
- (3) Table 16-1 shows the supported Tasks.
- (4) The managed status is same to local CPN Driver.
- (5) logon
  - Web session will be established in the same manner as IBM as follows:
  - User Profiles task has a check mark button to enable web remote service of Hitachi page for each user id of the level shown in Table 16-1. When a user opens a browser to address Hitachi page, logon id and password will be required.
  - Up to 8 web sessions can be connected to Hitachi page server.
- (6) logoff
  - It is recommended that a user end Web Server session after using it to prevent unauthorized users from accessing Hardware Management Console functions.

[first release]

  - Hitachi page does not have an icon to log off the page.
  - A user needs to close web server session after his operations.

[enhanced release 8x-07]

  - Hitachi page adds an icon to logoff as Console Actions.
  - Hitachi page adds Automatic Logoff.
- (7) Activation profiles
 

[first release]

  - A CPN detail page provides a selection of reset profiles to activate CPN object.
  - Activating CPN image in LPAR mode is done based on the LPAR related profile information held by MLPF in the same manner done by HMC/PMC local operation.

[enhanced release 8x-07]

  - A CPN image detail page provides a selection of profiles in LPAR mode:
    - ⇒ when an image profile is selected, the LPAR will be activated in the sense of “activate” by LPAR frame operation on MCD. And, if the LPAR is already activated, the LPAR will be re-activated after it is deactivated.
    - ⇒ when a load profile is selected, an operating system will be loaded on to the partition by using the information of the specified device and load parameter defined in the load profile.
  - Customize Activation Profile, e.g., customization of the detail items such as MS size for the selected LPAR, is available through Hitachi page as reset profile, image profile and load profile.

[difference]

- (1) This feature cannot operate Mixed group of IBM and Hitachi object on one page, but a user can see one page for IBM

CPCs and another page for Hitachi CPNs at the same time.

- (2) Activity task is not available.
- (3) Hitachi page does not show user-defined group. The managed objects are shown in Defined CPNs Group or in Defined CPN Images Group.
- (4) Personalize Information
  - IBM page holds a personalize information, i.e., refresh interval per user id plus client PC address, but Hitachi page holds it per client PC address. Therefore, if a client PC is shared by multiple operators, one personalize information is commonly used among the operators.

Table 16-1 Supported Tasks in Web Feature

| No. | user mode<br>task             | Operator | Advanced operator | Sysprog |
|-----|-------------------------------|----------|-------------------|---------|
| 1   | Activate                      | √        | √                 | √       |
| 2   | Deactivate                    | √        | √                 | √       |
| 3   | Reset Normal                  | √        | √                 | √       |
| 4   | Activity                      |          |                   |         |
| 5   | PSW Restart                   |          | √                 | √       |
| 6   | Reset Clear                   | √        | √                 | √       |
| 7   | Load                          | √        | √                 | √       |
| 8   | Customize Activation Profiles |          |                   | √       |
| 9   | OS Messages                   | √        | √                 | √       |
| 10  | H/W Messages                  | √        | √                 | √       |
| 11  | Details                       | √        | √                 | √       |

## 17. Management API

Hitachi Management API provide a way to manage CPN and LPAR by user application. This API feature base on SNMP object management. The following shows the characteristic. The more details of this feature are described in "CPN Driver Management API Specification (SJ6-EXP-SD-065)".

- (1) This feature support C and REXX API, and similar to IBM definition.
- (2) This feature has capability of the remote access on SNMP.
- (3) This feature is available for only modified HMC.
- (4) Table 17-1 shows supported tasks.
- (5) All IBM API functions are provided as Hitachi API functions, which are renamed from HWMCA... to HTC... such as HTCInitialize or RxHTCInitialize. "CPC" is also rename to "CPN".
- (6) The following events can be trapped.
  - Message occurred - hardware message, operating message
  - Command Response - task completion status
  - Status Change - changed status, exception status
  - Attribute Change of object - Name, Activation Profile
  - PMCA connection - connection establish, connection lost

[difference]

- (1) Hitachi API does not support user defined group object.
  - User defined group object is not available for Hitachi management API.
- (2) Hitachi API uses the private MIB that Hitachi originates.
  - HWMCA Management API use the IBM private MIB that has the extended suffix as the sub tree from IBM enterprise number of MIB.
  - Hitachi define the private MIB that has the extended suffix as the sub tree from Hitachi enterprise number. But the configuration hierarchy, i.e., the extended suffix is similar to IBM definition.
- (3) In addition to previously described event, IBM feature has the following events that are not supported in Hitachi feature, but they are trapped by IBM feature.
  - HWMCA start
  - HWMCA end
- (4) Activation

[first release]

- Activating a CPN is performed based on the reset profile set in the profile attribute of the CPN.
- Activating a CPN image is just like “activate” done by LPAR frame regardless of its activation profile attribute.
- To activating a CPN image as just loading operating system, direct load command with load address and parameter arguments should be used, otherwise auto load should be enabled as the activation of the CPN.

[enhanced release 8x-07]

- Activating a CPN image in LPAR mode is done according to its activation profile attribute, which is set to image profile name or to load profile name.
  - ⇒ When image profile is set to the activation profile attribute of a CPN image and the image object is activated, the LPAR will be activated according to the image profile.
  - ⇒ When load profile is set to the activation profile attribute of a CPN image and the image object is activated, operating system will be loaded to the object according to the parameters described in the load profile.

Table 17-1 Supported Functions in Management API Feature

| No. | managed object<br>task | CPN | CPN image | Defined CPNs<br>group | CPN images group |
|-----|------------------------|-----|-----------|-----------------------|------------------|
| 1   | Activate               | √   | √         | √                     | √                |
| 2   | Deactivate             | √   | √         | √                     | √                |
| 3   | Reset Normal           |     | √         |                       |                  |
| 4   | Start                  |     | √         |                       |                  |
| 5   | Stop                   |     | √         |                       |                  |
| 6   | PSW Restart            |     | √         |                       |                  |
| 7   | Reset Clear            |     | √         |                       |                  |
| 8   | Load                   |     | √         |                       |                  |
| 9   | OS Messages            |     | √         |                       |                  |
| 10  | H/W Messages           | √   |           | √                     |                  |

## 18. Appendix

### 18.1. Terminology

Table 18-1 shows the difference between Hitachi and IBM. In addition to the manufacturer's difference, Table 18-1 shows the difference between PMC and FSVP that uses Hitachi original terms for standalone CPU.

Table 18-1 terminology difference

| No | IBM HMC                          | Hitachi PMC                       | Hitachi FSVP                                    |
|----|----------------------------------|-----------------------------------|-------------------------------------------------|
| 1  | activate                         | same as left                      | power-on, SYSIML, activate(MLPF)                |
| 2  | CP: Central Processor            | IP: Instruction Processor         | same as left                                    |
| 3  | CPC: Central Processor Complex   | CPN: Central Processor Node       | CPU: Central Processing Unit                    |
| 4  | critical data                    | same as left                      | configuration data                              |
| 5  | customizable data                | same as left                      | configuration data                              |
| 6  | deactivate                       | same as left                      | power-off, deactivate(MLPF)                     |
| 7  | HMC: Hardware Management Console | PMC: Processor Management Console | -                                               |
| 8  | H/W messages                     | same as left                      | reference code                                  |
| 9  | image profile                    | same as left                      | LPARCNF: LPAR configuration                     |
| 10 | LIC: licenced internal code      | same as left for PMC              | c/w, microprogram                               |
| 11 | load profile                     | same as left                      | load address, load parameter                    |
| 12 | OS message                       | same as left                      | operator messages, console integration messages |
| 13 | profile                          | same as left                      | configuration                                   |
| 14 | reset profile                    | same as left                      | SYSCNF: system configuration                    |
| 15 | SE: Service Element              | PMCA: PMC Adapter                 | SVP: Service Processor                          |
| 16 | task                             | same as left                      | frame                                           |

18.2.Difference PMC and IBM HMC, and additional functions as Modified HMC

| IBM HMC<br>functions              | Hitachi<br>functions <sup>11</sup> | Hitachi PMC        |     |              | Modified HMC      |     |                    | user level <sup>10</sup> |   |   |   |                    |                    |      | HTC object |       |    |       | IBM object |       |
|-----------------------------------|------------------------------------|--------------------|-----|--------------|-------------------|-----|--------------------|--------------------------|---|---|---|--------------------|--------------------|------|------------|-------|----|-------|------------|-------|
|                                   |                                    | Base <sup>12</sup> | HTC | notes        | IBM <sup>13</sup> | HTC | notes              | A                        | V | Y | O | S(H) <sup>14</sup> | S(I) <sup>15</sup> | P(H) | CPN        | image | CF | image | CPC        | image |
| log on                            |                                    | √                  |     |              | √                 |     |                    | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
| View Area and Work Area           |                                    | √                  |     |              | √                 |     |                    | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
| Groups                            |                                    | √                  |     |              | √                 |     |                    | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
| Defined CPCs                      |                                    |                    |     |              | √                 |     |                    | √                        | √ | √ | √ |                    | √                  |      |            |       |    |       |            |       |
| Undefined CPCs                    |                                    |                    |     |              | √                 |     |                    | √                        | √ | √ | √ |                    | √                  |      |            |       |    |       |            |       |
| CPC Images                        |                                    |                    |     |              | √                 |     |                    | √                        | √ | √ | √ |                    | √                  |      |            |       |    |       |            |       |
|                                   | Defined CPNs                       |                    | √   |              |                   | √   |                    | √                        | √ | √ | √ | √                  |                    | √    |            |       |    |       |            |       |
|                                   | Undefined CPNs                     |                    | √   |              |                   | √   |                    | √                        | √ | √ | √ | √                  |                    | √    |            |       |    |       |            |       |
|                                   | CPN Images                         |                    | √   |              |                   | √   |                    | √                        | √ | √ | √ | √                  |                    | √    |            |       |    |       |            |       |
| User Defined Groups               |                                    | √                  |     |              | √                 |     |                    | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
| HMC                               |                                    | √                  |     | PMC: renamed | √                 |     | Hitachi integrated | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
|                                   |                                    |                    |     |              |                   |     |                    | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
| Optical Network                   |                                    |                    |     | no plan      | √                 |     | no plan            | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
| Exceptions                        |                                    | √                  |     |              | √                 |     |                    | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
| Active Tasks                      |                                    | √                  |     |              | √                 |     |                    | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
| Console Actions                   |                                    | √                  |     |              | √                 |     |                    | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
| Task List                         |                                    | √                  |     |              | √                 |     |                    | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
| Books                             |                                    | √                  |     |              | √                 |     |                    | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
| Task Area                         |                                    | √                  |     |              | √                 |     |                    | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
| Daily Tasks                       |                                    |                    | √   |              | √                 | √   |                    | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
| CPC Recovery Tasks                |                                    |                    |     |              | √                 | √   |                    | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
| -                                 | CPN Recovery Tasks                 |                    | √   |              |                   |     |                    | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
| CPC Operation Customization Tasks |                                    |                    |     |              | √                 |     |                    | √                        | √ | √ | √ |                    | √                  |      |            |       |    |       |            |       |
| -                                 | CPN Operation Customization Tasks  |                    | √   |              |                   | √   |                    | √                        | √ | √ | √ | √                  | √                  | √    |            |       |    |       |            |       |
| CPC Configuration Tasks           |                                    |                    |     |              | √                 |     |                    |                          |   | √ |   |                    | √                  |      |            |       |    |       |            |       |
| -                                 | CPN Configuration Tasks            |                    | √   |              |                   | √   |                    |                          |   | √ |   | √                  | √                  | √    |            |       |    |       |            |       |
| CPC Remote Customization Tasks    |                                    |                    |     | no plan      | √                 |     | no plan            |                          |   | √ |   |                    | √                  |      |            |       |    |       |            |       |
| Change Management Tasks           |                                    |                    |     | no plan      | √                 |     | no plan            | √                        | √ | √ | √ |                    | √                  |      |            |       |    |       |            |       |
| Object Definition Tasks           |                                    |                    |     | no plan      | √                 |     | no plan            | √                        |   |   |   | √                  | √                  | √    |            |       |    |       |            |       |
| Service Tasks                     |                                    |                    |     | no plan      | √                 |     | no plan            | √                        | √ | √ | √ |                    | √                  |      |            |       |    |       |            |       |
| Hardware Messages                 |                                    | √                  |     |              | √                 |     |                    | √                        | √ | √ | √ | √                  | √                  | √    | √          | √     | √  | √     | √          | √     |
| Operating System Messages         |                                    |                    | √   |              | √                 | √   |                    | √                        | √ | √ | √ | √                  | √                  | √    | √          | √     | √  | √     | √          | √     |

<sup>10</sup> A: Access Administrator, Y: System Programmer, V: Advanced Operator, O: Operator, S: Service, P: Hitachi Product Engineer  
<sup>11</sup> The case “HTC” field is “√” and its Hitachi function is blank, Hitachi icon name is same as IBM icon name.  
<sup>12</sup> Base: indicates common tasks which are involved IBM HMC workplace provided to Hitachi.  
<sup>13</sup> IBM: IBM HMC  
<sup>14</sup> S(H): indicates Hitachi Service Representative level.  
<sup>15</sup> S(I): indicates IBM Service Representative level. The access to a IBM task can be customized by “Customize ”

| IBM HMC<br>functions                       | Hitachi<br>functions                          | Hitachi PMC |     |                                   | Modified HMC |     |                                          | user level |   |   |   |      |      |      | HTC object |       |    |       | IBM object |       |
|--------------------------------------------|-----------------------------------------------|-------------|-----|-----------------------------------|--------------|-----|------------------------------------------|------------|---|---|---|------|------|------|------------|-------|----|-------|------------|-------|
|                                            |                                               | Base        | HTC | notes                             | IBM          | HTC | notes                                    | A          | V | Y | O | S(H) | S(I) | P(H) | CPN        | image | CF | image | CPC        | image |
| <b>Console Actions</b>                     |                                               |             |     |                                   |              |     |                                          |            |   |   |   |      |      |      |            |       |    |       |            |       |
| View Console Events                        |                                               | √           |     |                                   | √            |     |                                          | √          | √ | √ | √ | √    | √    | √    |            |       |    |       |            |       |
| View Console Service History               |                                               |             |     | no plan                           | √            |     | no plan                                  | √          | √ | √ | √ | √    | √    | √    |            |       |    |       |            |       |
| Save/Restore Customizable Console Data     |                                               | √           |     |                                   | √            |     |                                          | √          |   |   |   |      |      | √    |            |       |    |       |            |       |
| -                                          | Save/Restore Customizable HTC CPN Driver Data |             | √   |                                   |              | √   |                                          | √          |   |   |   |      |      | √    |            |       |    |       |            |       |
| Customize Console Date/Time                |                                               | √           |     |                                   | √            |     |                                          | √          | √ | √ | √ | √    | √    | √    |            |       |    |       |            |       |
| Change Console Internal Code               |                                               |             |     |                                   | √            |     |                                          |            | √ | √ |   |      | √    |      |            |       |    |       |            |       |
| Analyze Internal Code                      |                                               | √           |     | patch for IBM common tasks        | √            |     |                                          |            |   |   |   | √    | √    | √    |            |       |    |       |            |       |
| -                                          | Change Console Internal Code                  |             | √   | patch for Hitachi CPN Driver Code |              | √   | Change Hitachi CPN Driver Code: renamed  |            |   |   |   | √    |      | √    |            |       |    |       |            |       |
| -                                          | Convert Console Internal Code                 |             | √   | FCO for Hitachi CPN Driver Code   |              | √   | Convert Hitachi CPN Driver Code: renamed |            |   |   |   | √    |      | √    |            |       |    |       |            |       |
| Backup Critical Console Data <sup>16</sup> |                                               | √           |     |                                   | √            |     |                                          |            |   | √ |   | √    | √    | √    |            |       |    |       |            |       |
| Perform a Console Repair Action            |                                               |             |     | no plan                           | √            |     | no plan                                  |            |   |   |   |      | √    |      |            |       |    |       |            |       |
| View Console Information                   |                                               |             | √   | refer to RM: C/W information      | √            | √   | refer to RM: C/W information             | √          | √ | √ | √ | √    | √    | √    |            |       |    |       |            |       |
| Customize Automatic Logon                  |                                               | √           |     |                                   | √            |     |                                          | √          |   |   |   |      |      | √    |            |       |    |       |            |       |
| User Profiles                              |                                               | √           |     |                                   | √            |     |                                          | √          |   |   |   |      |      |      |            |       |    |       |            |       |
| Customize User Controls                    |                                               |             |     | no plan                           | √            |     | no plan                                  | √          |   |   |   |      |      |      |            |       |    |       |            |       |
| Customize Product Engineering Access       |                                               | √           |     |                                   | √            |     |                                          | √          |   |   |   |      |      |      |            |       |    |       |            |       |
| Hardware Management Console Settings       |                                               | √           |     | PMC GUI Setting: renamed          | √            |     |                                          | √          | √ | √ | √ | √    | √    | √    |            |       |    |       |            |       |
| Domain Security                            |                                               |             |     | no plan                           | √            |     | no plan                                  | √          |   |   |   | √    | √    | √    |            |       |    |       |            |       |
| Enable Pager Notification                  |                                               |             |     | no plan                           | √            |     | no plan                                  |            |   | √ |   |      |      |      |            |       |    |       |            |       |

<sup>16</sup> To restore critical console data,  
1. MIX Configuration: IBM Service Representative needs to restore the data by a specific FD.  
2. Hitachi PMC: Hiatchi Service Representative needs to restore the data by the same specific FD.



| IBM HMC<br>functions                       | Hitachi<br>functions                    | Hitachi PMC |     |                    | Modified HMC |     |                                         | user level |   |   |   |      |      |      | HTC object |       |    |       | IBM object |       |
|--------------------------------------------|-----------------------------------------|-------------|-----|--------------------|--------------|-----|-----------------------------------------|------------|---|---|---|------|------|------|------------|-------|----|-------|------------|-------|
|                                            |                                         | Base        | HTC | notes              | IBM          | HTC | notes                                   | A          | V | Y | O | S(H) | S(I) | P(H) | CPN        | image | CF | image | CPC        | image |
| <b>Console Actions</b>                     |                                         |             |     |                    |              |     |                                         |            |   |   |   |      |      |      |            |       |    |       |            |       |
| Customize Scheduled Operations             |                                         |             |     | no plan            | √            |     | no plan                                 |            |   | √ |   |      | √    |      |            |       |    |       |            |       |
| Customize Problem Management               |                                         |             |     | no plan            | √            |     | no plan                                 |            |   | √ |   |      | √    |      |            |       |    |       |            |       |
| Installation Completion Report             |                                         |             |     | no plan            | √            |     | no plan                                 |            |   |   |   |      | √    |      |            |       |    |       |            |       |
| Report a problem                           |                                         |             |     | no plan            | √            |     | no plan                                 |            |   | √ | √ |      | √    |      |            |       |    |       |            |       |
| IBM Service Support System                 |                                         |             |     | no plan            | √            |     | no plan                                 |            |   |   |   |      | √    |      |            |       |    |       |            |       |
| Remote Support Telephone Queue             |                                         |             |     | no plan            | √            |     | no plan                                 | √          | √ | √ | √ |      | √    | √    |            |       |    |       |            |       |
| Delete Staging Area Files                  |                                         |             |     | no plan            | √            |     | no plan                                 |            |   |   |   |      | √    |      |            |       |    |       |            |       |
| Enable Hardware Management Console Service |                                         |             |     | refer to RM remark | √            |     | refer to RM remark                      |            | √ | √ |   |      |      | √    |            |       |    |       |            |       |
| Transmit Console Service Data              |                                         |             |     | refer to RM remark | √            |     | refer to RM remark                      | √          | √ | √ | √ |      | √    | √    |            |       |    |       |            |       |
| Customize Automatic Dialing                |                                         |             |     | refer to RM remark | √            |     | refer to RM remark                      |            |   | √ |   |      | √    |      |            |       |    |       |            |       |
| Customize Account Information              |                                         |             |     | refer to RM remark | √            |     | refer to RM remark                      |            |   | √ |   |      | √    |      |            |       |    |       |            |       |
| Customize Remote Service                   |                                         |             |     | refer to RM remark | √            |     | refer to RM remark                      |            |   | √ |   |      | √    |      |            |       |    |       |            |       |
| Authorize Internal Code Change             |                                         |             |     | refer to RM remark | √            |     | refer to RM remark                      |            |   | √ |   |      | √    |      |            |       |    |       |            |       |
| -                                          | HTCGTLOG for backup log files           |             | √   | RM <sup>17</sup>   |              | √   | RM <sup>18</sup>                        |            |   |   |   | √    |      | √    |            |       |    |       |            |       |
| -                                          | MXGETLOG for backup log files           |             | √   | RM                 |              | √   | RM                                      |            |   |   |   | √    |      | √    |            |       |    |       |            |       |
| -                                          | C/W Information to view versions        |             | √   | RM                 |              | √   | RM                                      |            |   |   |   | √    |      | √    |            |       |    |       |            |       |
| -                                          | SAVEENV/ RTRVENV for communication file |             | √   | RM                 |              | √   | RM                                      |            |   |   |   | √    |      | √    |            |       |    |       |            |       |
| -                                          | SETHOST to update HOSTS file            |             | √   | RM                 |              | √   | RM                                      |            |   |   |   | √    |      | √    |            |       |    |       |            |       |
| -                                          | IMPLCHK to check communication file     |             | √   | RM                 |              | √   | RM                                      |            |   |   |   | √    |      | √    |            |       |    |       |            |       |
| -                                          | shoutcut to PMPING                      |             | √   | RM                 |              | √   | RM                                      |            |   |   |   | √    |      | √    |            |       |    |       |            |       |
| TCP/IP Configuration                       |                                         |             |     | in CE folder       | √            |     |                                         | √          |   |   |   |      |      |      |            |       |    |       |            |       |
| SNMP Configuration                         |                                         |             |     | TBD                | √            |     | common <sup>19</sup>                    | √          |   |   |   |      |      |      |            |       |    |       |            |       |
| Log off                                    |                                         | √           |     |                    | √            |     |                                         | √          | √ | √ | √ | √    | √    | √    |            |       |    |       |            |       |
| View Console Logs                          |                                         | √           |     |                    | √            |     |                                         |            |   |   |   |      |      | √    |            |       |    |       |            |       |
| Vital Product Data Editor                  |                                         |             |     | no plan            | √            |     | no plan                                 |            |   | √ |   | √    | √    |      |            |       |    |       |            |       |
| Perform Console Trace <sup>20</sup>        |                                         | √           |     |                    | √            |     |                                         |            |   |   |   |      |      | √    |            |       |    |       |            |       |
| SIM Debug Tool                             |                                         | √           |     |                    | √            |     |                                         |            |   |   |   |      |      | √    |            |       |    |       |            |       |
| -                                          | PMC Network Information Settings        |             | √   |                    |              | √   | Hitachi CPN Driver Code Network setting |            |   |   |   | √    |      | √    |            |       |    |       |            |       |
| -                                          | PMC Install                             |             | √   |                    |              | √   | Hitachi CPN Driver Code install         |            |   |   |   |      |      | √    |            |       |    |       |            |       |

<sup>17</sup> RM: PMC Remote Maintenance functions is not supported. The utilities for backup the log files in PMC, HMC and PMCA's are provided as commands set, which is in Trouble Shooting folder of Maintenance folder on PMC OS/2 desktop.

<sup>18</sup> RM: CPN Driver Remote Maintenance functions is not supported. The utilities for backup the log files in PMC, HMC and PMCA's are provided as commands set, which is in CPN Driver Trouble Shooting folder on HMC OS/2 desktop.

<sup>19</sup> Hitachi API/ SNMP uses IBM'S agent infomation.

<sup>20</sup> Perform Console Trace, SIM Debug Tool: not to be described in manual, because this is for debugging HMC LIC by Product Engineering.

| IBM HMC<br>functions                  | Hitachi<br>functions | Hitachi PMC |     |                                        | Modified HMC |     |                          | user level |   |   |   |      |      |      | HTC object |       |    |       | IBM object |       |
|---------------------------------------|----------------------|-------------|-----|----------------------------------------|--------------|-----|--------------------------|------------|---|---|---|------|------|------|------------|-------|----|-------|------------|-------|
|                                       |                      | Base        | HTC | notes                                  | IBM          | HTC | notes                    | A          | V | Y | O | S(H) | S(I) | P(H) | CPN        | image | CF | image | CPC        | image |
| <b>Daily Tasks</b>                    |                      |             |     |                                        |              |     |                          |            |   |   |   |      |      |      |            |       |    |       |            |       |
| Activate                              |                      |             | √   |                                        | √            | √   |                          |            | √ | √ | √ | √    | √    | √    | √          | √     | √  | √     | √          | √     |
| Reset Normal                          |                      |             | √   |                                        | √            | √   |                          |            | √ | √ | √ | √    | √    | √    |            | √     |    |       |            | √     |
| Deactivate                            |                      |             | √   |                                        | √            | √   |                          |            | √ | √ | √ | √    | √    | √    | √          | √     | √  | √     | √          | √     |
| Grouping                              |                      | √           |     |                                        | √            |     |                          |            |   | √ |   |      |      | √    | √          | √     | √  | √     | √          | √     |
| Activity                              |                      |             | √   | to be scheduled                        | √            | √   | to be scheduled          | √          | √ | √ | √ | √    | √    | √    | √          | √     | √  | √     | √          | √     |
| Help                                  |                      |             | √   |                                        | √            | √   |                          | √          | √ | √ | √ | √    | √    | √    | √          | √     | √  | √     | √          | √     |
| <b>CPC Recovery Tasks</b>             |                      |             |     | <b>CPN Recovery Tasks:<br/>renamed</b> |              |     | <b>CPC Recover Tasks</b> |            |   |   |   |      |      |      |            |       |    |       |            |       |
| Single Object Operation               |                      |             | √   |                                        | √            | √   |                          | √          | √ | √ | √ | √    | √    | √    | √          |       | √  |       | √          |       |
| Start                                 |                      |             | √   |                                        | √            | √   |                          |            | √ | √ |   | √    | √    | √    |            | √     |    |       |            | √     |
| Stop                                  |                      |             | √   |                                        | √            | √   |                          |            | √ | √ |   | √    | √    | √    |            | √     |    |       |            | √     |
| Reset Normal                          |                      |             | √   |                                        | √            | √   |                          |            | √ | √ | √ | √    | √    | √    |            | √     |    |       |            | √     |
| PSW Restart                           |                      |             | √   |                                        | √            | √   |                          |            | √ | √ |   | √    | √    | √    |            | √     |    |       |            | √     |
| Reset Clear                           |                      |             | √   |                                        | √            | √   |                          |            | √ | √ | √ | √    | √    | √    |            | √     |    |       |            | √     |
| Load                                  |                      |             | √   |                                        | √            | √   |                          |            | √ | √ | √ | √    | √    | √    |            | √     |    |       |            | √     |
| -                                     | PMCA Shutdown        |             | √   |                                        |              | √   |                          |            |   |   |   | √    | √    | √    | √          |       | √  |       |            |       |
| Help                                  |                      |             | √   |                                        | √            | √   |                          | √          | √ | √ | √ | √    | √    | √    | √          | √     | √  | √     | √          | √     |
| <b>Service Tasks</b>                  |                      |             |     |                                        |              |     |                          |            |   |   |   |      |      |      |            |       |    |       |            |       |
| Service Status                        |                      |             |     | no plan                                | √            |     | no plan                  | √          | √ | √ | √ |      | √    |      |            |       |    |       | √          |       |
| Perform Problem Analysis              |                      |             |     | no plan                                | √            |     | no plan                  |            | √ | √ | √ |      | √    |      |            |       |    |       | √          |       |
| View Service History                  |                      |             |     | no plan                                | √            |     | no plan                  |            | √ | √ | √ |      | √    |      |            |       |    |       | √          |       |
| Backup CPC Critical Data              |                      |             |     | refer to SCDS Copy task                | √            |     | refer to SCDS Copy task  |            |   | √ |   |      | √    |      |            |       |    |       | √          |       |
| Hard Disk Restore                     |                      |             |     | refer to SCDS Copy task                | √            |     | refer to SCDS Copy task  |            |   |   |   |      | √    |      |            |       |    |       | √          |       |
| Checkout Tests                        |                      |             |     | no plan                                | √            |     | no plan                  |            |   |   |   |      | √    |      |            |       |    |       | √          |       |
| Report a Problem                      |                      |             |     | no plan                                | √            |     | no plan                  |            | √ | √ | √ |      | √    |      |            |       |    |       | √          |       |
| Transmit Service Data                 |                      |             |     | no plan                                | √            |     | no plan                  | √          | √ | √ | √ |      | √    |      |            |       |    |       | √          |       |
| Help                                  |                      |             |     | no plan                                | √            |     | no plan                  | √          | √ | √ | √ |      | √    |      |            |       |    |       | √          |       |
| <b>Change Management Tasks</b>        |                      |             |     | no plan                                | √            |     | no plan                  |            |   |   |   |      |      |      |            |       |    |       |            |       |
| Engineering Changes(EC)               |                      |             |     | no plan                                | √            |     | no plan                  |            |   | √ |   |      | √    |      |            |       |    |       | √          |       |
| CPC EC Details                        |                      |             |     | no plan                                | √            |     | no plan                  |            |   | √ |   |      | √    |      |            |       |    |       | √          |       |
| Retrieve Internal Code                |                      |             |     | no plan                                | √            |     | no plan                  | √          |   | √ |   |      | √    |      |            |       |    |       | √          |       |
| Change Internal Code                  |                      |             |     | no plan                                | √            |     | no plan                  | √          |   | √ |   |      | √    |      |            |       |    |       | √          |       |
| Product Engineering Directed Changes  |                      |             |     | no plan                                | √            |     | no plan                  |            |   |   |   |      | √    |      |            |       |    |       | √          |       |
| System Information                    |                      |             |     | no plan                                | √            |     | no plan                  | √          | √ | √ | √ |      | √    |      |            |       |    |       | √          |       |
| Help                                  |                      |             |     | no plan                                | √            |     | no plan                  | √          | √ | √ | √ |      | √    |      |            |       |    |       | √          |       |
| <b>CPC Remote Customization Tasks</b> |                      |             |     | no plan                                | √            |     | no plan                  |            |   |   |   |      |      |      |            |       |    |       |            |       |
| Remote Service                        |                      |             |     | no plan                                | √            |     | no plan                  |            |   | √ |   |      | √    |      |            |       |    |       | √          |       |
| Problem Management                    |                      |             |     | no plan                                | √            |     | no plan                  |            |   | √ |   |      | √    |      |            |       |    |       | √          |       |
| Operation Management                  |                      |             |     | no plan                                | √            |     | no plan                  |            |   | √ |   |      | √    |      |            |       |    |       | √          |       |
| Account Information                   |                      |             |     | no plan                                | √            |     | no plan                  |            |   | √ |   |      | √    |      |            |       |    |       | √          |       |
| Help                                  |                      |             |     | no plan                                | √            |     | no plan                  |            |   | √ |   |      | √    |      |            |       |    |       | √          |       |

| IBM HMC<br>functions                       | Hitachi<br>functions | Hitachi PMC |     |                                    | Modified HMC |     |                           | user level |   |   |   |      |      |      | HTC object |       |    |       | IBM object |       |
|--------------------------------------------|----------------------|-------------|-----|------------------------------------|--------------|-----|---------------------------|------------|---|---|---|------|------|------|------------|-------|----|-------|------------|-------|
|                                            |                      | Base        | HTC | notes                              | IBM          | HTC | notes                     | A          | V | Y | O | S(H) | S(I) | P(H) | CPN        | image | CF | image | CPC        | image |
| <b>CPC Operational Customization Tasks</b> |                      |             |     |                                    |              |     |                           |            |   |   |   |      |      |      |            |       |    |       |            |       |
| Customize Activation Profiles              |                      |             |     |                                    | √            |     |                           |            |   | √ |   |      |      |      |            |       |    |       | √          | √     |
| View/Delete Activation Profiles            |                      |             |     |                                    | √            |     |                           |            |   | √ |   |      |      |      |            |       |    |       | √          |       |
| View Activation Profiles                   |                      |             |     |                                    | √            |     |                           |            |   |   | √ |      | √    |      |            |       |    |       | √          |       |
| Customize Activity Profiles                |                      |             |     |                                    | √            |     |                           | √          | √ | √ | √ |      | √    |      |            |       |    |       | √          |       |
| Automatic Activation                       |                      |             |     |                                    | √            |     |                           |            |   | √ |   |      |      |      |            |       |    |       | √          |       |
| Scheduled Operations                       |                      |             |     |                                    | √            |     |                           |            |   | √ |   |      | √    |      |            |       |    |       | √          |       |
| Customize Support Element Date / Time      |                      |             |     |                                    | √            |     |                           | √          | √ | √ | √ |      | √    |      |            |       |    |       | √          |       |
| Help                                       |                      |             |     |                                    | √            |     |                           | √          | √ | √ | √ |      | √    |      |            |       |    |       | √          | √     |
| <b>CPN Operational Customization Tasks</b> |                      |             |     |                                    |              |     |                           |            |   |   |   |      |      |      |            |       |    |       |            |       |
| Customize Activation Profiles              |                      |             | √   |                                    | √            | √   |                           |            |   | √ |   | √    |      | √    | √          | √     | √  | √     |            |       |
| View/Delete Activation Profiles            |                      |             |     | no plan: unnecessary <sup>21</sup> | √            |     | no plan: unnecessary      |            |   |   |   |      |      |      | √          | √     | √  | √     |            |       |
| View Activation Profiles                   |                      |             | √   | 80-03-00                           | √            | √   | 80-03-00                  | √          | √ |   | √ |      |      |      | √          | √     | √  | √     |            |       |
| Customize Activity Profiles                |                      |             |     | included in Activity task          | √            |     | included in Activity task |            |   |   |   |      |      |      |            |       |    |       |            |       |
| Automatic Activation                       |                      |             |     | no plan                            | √            |     | no plan                   |            |   |   |   |      |      |      |            |       |    |       |            |       |
| Scheduled Operations                       |                      |             |     | no plan                            | √            |     | no plan                   |            |   |   |   |      |      |      |            |       |    |       |            |       |
| Customize SVP Date/ Time                   |                      |             | √   |                                    |              | √   |                           | √          | √ | √ | √ | √    |      | √    | √          |       | √  |       |            |       |
| Help                                       |                      |             |     |                                    |              | √   |                           | √          | √ | √ | √ | √    |      | √    | √          | √     | √  | √     | √          | √     |
| <b>CPC Configuration Tasks</b>             |                      |             |     |                                    |              |     |                           |            |   |   |   |      |      |      |            |       |    |       |            |       |
| Perform Model Conversions                  |                      |             |     | no plan                            | √            |     | no plan                   |            |   |   |   |      | √    |      |            |       |    |       | √          |       |
| Transmit Vital Product Data                |                      |             |     | no plan                            | √            |     | no plan                   |            |   | √ |   |      | √    |      |            |       |    |       | √          |       |
| View Frame Layout                          |                      |             |     | no pan                             | √            |     | no pan                    |            |   | √ |   |      |      |      |            |       |    |       | √          |       |
| Edit Frame Layout                          |                      |             |     | no plan                            | √            |     | no plan                   |            |   |   |   |      | √    |      |            |       |    |       | √          |       |
| Help                                       |                      |             |     |                                    | √            |     |                           |            |   | √ |   |      | √    |      |            |       |    |       |            |       |
| <b>CPN Configuration Tasks</b>             |                      |             |     |                                    |              |     |                           |            |   |   |   |      |      |      |            |       |    |       |            |       |
| SCDS Copy <sup>22</sup>                    |                      |             | √   | 80-03-05                           |              | √   | 80-03-05                  |            |   | √ |   | √    |      | √    | √          | √     | √  | √     | √          | √     |
| Help                                       |                      |             |     |                                    |              | √   |                           | √          | √ | √ | √ | √    |      | √    | √          | √     | √  | √     | √          | √     |
| <b>Object Definition Tasks</b>             |                      |             |     |                                    |              |     |                           |            |   |   |   |      |      |      |            |       |    |       |            |       |
| Change Object Definition                   |                      |             |     | no plan: unnecessary <sup>23</sup> | √            |     | no plan                   | √          |   |   |   |      | √    | √    | √          | √     |    | √     | √          |       |
| Add Object Definition                      |                      |             |     | no plan                            | √            |     | no plan                   |            |   |   |   |      |      | √    | √          |       | √  |       | √          |       |
| Remove Object Definition                   |                      |             |     | no pan                             | √            |     | no pan                    | √          |   |   |   |      |      | √    | √          |       | √  |       | √          |       |
| Reboot Service Element                     |                      |             |     | no plan                            | √            |     | no plan                   | √          |   |   |   |      | √    | √    | √          | √     |    | √     | √          |       |
| Help                                       |                      |             |     | no plan                            | √            |     | no plan                   | √          | √ | √ | √ | √    | √    | √    | √          | √     | √  | √     | √          | √     |

<sup>21</sup> Activation Profiles count of Hitachi is fixed.

<sup>22</sup> alternative to Backup CPC Critical Data task/ Harddisk Restore task

<sup>23</sup> CPN object information is defined during PMCA setup.