National RTGS in EMEAP Region

Part A: General Information

	Australia	China	Hong Kong	Indonesia	Japan	Korea	Malaysia	New Zealand	Philippines	Singapore	Thailand
1. Name of the system	RITS (Reserve Bank Information Transfer System)	CNAPS (China National Advanced Payment system)	HKD RTGS	BI-RTGS (Bank Indonesia-RTGS)	BOJ-NET Funds Transfer System	BOK-Wire	RENTAS (The Real-Time Electronic Transfer of Funds And Securities)	ESAS (Exchange Settlement Account System)	PhilPaSS (Philippine Payment & Settlement System)	MEPS (MAS Electronic Payment System)	BAHTNET
2. Year of implementation	1998	2002	1996	2000	1988 (2001)	1994	1999	1998	2002	1998	1995(2001)
3. Ownership	Central bank	Central bank	Central bank & Hong Kong Association of Banks	Private company owned by BI foundation	Central bank	Central bank	Central bank	Central bank	Central bank	Central bank	Central bank
4. System operator	Central bank	Central bank	Hong Kong Interbank Clearing Ltd.	Central bank	Central bank	Central bank	Central bank	Central bank	Central bank	Central bank	Central bank
5. Network operator	Clearing company[1] & S.W.I.F.T.(PDS)	Central bank	Hong Kong Interbank Clearing Ltd.	Private companies[2]	Central bank	Central bank	Central bank	Central bank & S.W.I.F.T.	Central bank & S.W.I.F.T.	Central bank	Central bank & S.W.I.F.T.
6. Message carrier	S.W.I.F.T. & national telecom organization	National telecom organization	Phone company	National telecom organization	Phone company	Phone company	Phone company	S.W.I.F.T. & Phone company	S.W.I.F.T. & Phone company	National telecom organization	S.W.I.F.T.
7. Opening-closing time (W) weekdays (Sat) Saturday <local time>	(W) 9:15-19:00 winter 21:00 summer	(W) 8:30-17:00	(W) 9:00-17:30 (Sat) 9:00-12:00	(W) 6:30-19:00	(W) 9:00-19:00[3]	(W) 9:30-17:00	(W) 8:00-18:00 (Sat) 8:00-13:00	(W) 9:00-8:40 (next business day)	(W) 10:00-17:45	(W) 9:00-18:30 (Sat) 9:00-14:45	(W) 8:30-17:30
8. Message flow structure	Y-shaped	Y-shaped	Y-shaped	V-shaped	V-shaped	V-shaped	Y-shaped	Y-shaped	Y-shaped	V-shaped	V-shaped
9. Number of direct participants	59	528	131	121	368[4]	130	89[5]	11	93	70	63
10. Number of transactions in 2003											
daily average	21,168	132,712	13,721	17,055	20,101	6,412	5,500	3,500	646	8,000	2,608
peak day	31,381	346,410	20,469	31,263	34,749	9,743	8,000	5,400	1171	12,500	4,468
11. Value of transactions in 2003 (USD million)											
daily average	80,899	31,035	44,615	10,008[6]	660,815[7]	73,867	10,500	23,000	2,411	25,000	6,357
peak day	134,581	81,954	83,333	25,391	1,149,631	119,359	15,800	35,000	4,081	33,000	12,666

[1] RITS shares Austraclear Limited's proprietary on-line terminal network

[2] **Primary:** PT. Aplikanusa Lintasarta, a private company owned by an association of private commercial banks (PERBANAS), the association of state-owned commercial banks (HIMBARA), the foundation of BI Pension Fund, the national telecom company (PT.TELKOM), and the company providing satellite services for international telecommunications (PT INDOSAT), **Backup lines** for BI Branches: PT. Telkom.

[3] Participants who made an application for extension of the closing time can access the system until 19:00. Other participants can access the system until 17:00.

[4] End of February, 2004

[5] 53 Conventional Banking and 36 Islamic Banking Schemes (as at 23 April 2001).

[6] Rp 8,570 to the USD (an average during 2003)

[7] 115.94 yen to the USD (an average during 2003)

Part B: Intraday Liquidity Support and Management

	Australia	China	Hong Kong	Indonesia	Japan	Korea	Malaysia	New Zealand	Philippines	Singapore	Thailand
1. Intraday liquidity facility											
On what basis	Intraday repos	NA	Intraday repos	Intraday overdrafts	Intraday overdrafts	Intraday overdrafts	Intraday overdrafts	Intraday repos	Intraday repos	Intraday repos	Intraday repos
Quantitative limit	No	NA	No	Yes	No	Yes	No	No	No	Yes	No
Charges for intraday use	No	NA	No	No[1]	No	No	No	No	Yes	No	No
Collateralized or not (in case of intraday overdrafts)	NA	NA	Yes	Yes	Yes	Yes	Yes	NA	Yes	NA	NA
2. Availability of standing o/n facilities at any time during the day.	No	No	Yes	No	Yes	No	No	Yes	Yes	Yes	No[2]
3. Throughput guidelines	No	No	Yes	No	No	No	Yes	No	No	Yes[3]	Yes
4. Is pricing used as an incentive for efficient processing of payments?	No	No	No	No[4]	No	Other (lower charges before 16:00)	No	No	No	No	Yes
5. How does the central bank monitor liquidity?	Macro & Micro approach	Micro approach	Macro approach	Macro approach	Macro & Micro approach	Micro approach	Macro approach	Macro & Micro approach	Macro & Micro approach	Macro & Micro approach	Macro & Micro approach
6. Does the system allow future-dated messages to be input?	Yes	No	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes

[1] Intraday charges to be imposed soon
[2] Intraday repos which cannot be returned to central banks by end of RTGS day will be treated as overnight repos and penalty charges applied.
[3] Banks have to follow a Graduated Payment Schedule. During weekdays, the schedule requires banks to make at least 30% of value X (the average daily payment for the past two weeks) by 10:30. 60% of value X should be paid by 14:30 and the balance of all payments for the day by 17:30. On Saturdays, all payments have to be made by 12:30.
[4] The system allows the setting of different charges for different time periods.

Part C: Centrally Located Queuing Arrangement

	Australia	China	Hong Kong	Indonesia	Japan	Korea	Malaysia	New Zealand	Philippines	Singapore	Thailand
1. Standard rule for queuing	Next-down looping	FIFO	FIFO	FIFO	BOJ does not employ queuing system for settlement. (Under study)	Bypass FIFO	FIFO	Next-down looping	FIFO	FIFO	Bypass FIFO
2. Priority	Chosen by sending banks	Chosen by sending banks & Prioritized automatically	None	Automatically[1]	ditto	None	Chosen by sending banks & Prioritized automatically	Chosen by sending banks	Chosen by sending banks & Prioritized automatically	Chosen by sending banks & Prioritized automatically	Chosen by sending banks
3. Reordering by participants	Yes	Yes	Yes	Yes (for Interbank only)	ditto	No	Yes	Yes	Yes	Yes	Yes
4. Reordering by the system operator	No	No	No	Yes[2]	ditto	No	Yes (only for priority queue)	No	No	No	Yes (On request)
5. Optimization routine	Other (Auto-Offset facility)[3]	None	None	FAFO	ditto	FAFO	FAFO	Other (Auto-Offset facility, freeze frame)	None	None	Other (Multilateral offset)
6. Real-time information on queued incoming transfers	Other[4]	No	Other[5]	On request	ditto	Released automatically	On request	Released	On request	On request	On request
7. Transparency of queued incoming transfers	Details of each individual transfer	NA	Details of each individual transfer	Details of each individual transfer[6]	ditto	Details of each individual transfer	Details of each individual transfer	Details of each individual transfer	Details of each individual transfer	Details of each individual transfer (partial)	Details of each individual transfer
8. Revocability of queued transfers											
by participants	Yes	Yes	Yes[7]	Yes[8]	ditto	Yes	Yes	Yes	Yes	Yes	Yes[9]
by the system operator	End-of-day[10]	End-of-day	End-of-day	During the day[11]	ditto	End-of-day	End-of-day	End-of-day	End-of-day	End-of-day	End-of-day

[1] Prioritized automatically by the system according to type of transaction.
[2] Especially for bank transactions relating to non-banks' accounts maintained at BI (prioritized transaction).
[3] Under the Auto-Offset facility, the system will automatically search the System Queue for offsetting payments from the receiving bank. If payments between the banks can be offset and settled simultaneously without any limits being breached, the system will do so automatically.
[4] Members can view the status of their own transactions in real time on the RTGS queue using their RITS terminal. Throughout the "normal" operating day, members can also view incoming payments that have "active" status. During the restricted RITS end-of-day session (no new payments may be submitted), members can view all incoming payments regardless of status.
[5] Member banks can view all queued incoming transfers during the last half hour of system operation (i.e. 17:00 p.m. to 17:30 p.m.).
[6] It depends on the parameter setting that can be set either for aggregate information or for detail information.
[7] Before 17:00.
[8] Only for inter-bank transactions and if the parameter in the operator's computer is set to allow a bank to revoke queued inter-bank transactions.
[9] Bilateral cancellation with the consent of the receiving bank is considered.
[10] Should a participant be suspended, or have its membership terminated, under system rules, queued payments will be removed from the system queue.
[11] As long as the parameter setting for allowing the operator to revoke queued transactions, especially bank transactions relating to non-banks' accounts maintained at BI (prioritized transactions), is activated.

Part D: Technical Aspects

	Australia	China	Hong Kong	Indonesia	Japan	Korea	Malaysia	New Zealand	Philippines	Singapore	Thailand
1. Connection between the system and participants	Dedicated terminal & S.W.I.F.T. FIN & FIN-Copy	Dedicated terminal & CPU to CPU connection	Dedicated terminal	CPU to CPU connection (host-link)	Dedicated terminal & CPU to CPU connection (host-link)[1]	Dedicated terminal	Dedicated terminal & CPU to CPU connection (host-link)	Dedicated terminal & SWIFT FIN-Copy	Dedicated terminal & SWIFT FIN-Copy	CPU to CPU connection (host-link)	S.W.I.F.T. & Web
2. Message format	S.W.I.F.T.	Proprietary message format	Proprietary message format	Proprietary message format	Proprietary message format and S.W.I.F.T.[2]	Proprietary message format	Proprietary message format	S.W.I.F.T.	S.W.I.F.T.	S.W.I.F.T.	S.W.I.F.T. and web[3]
3. Application layer	TCP/IP, S.W.I.F.T.	TCP/UDP/SNA	SNA (3270)	Proprietary	SNA (4700)	Proprietary	TCP/IP	TCP/IP, S.W.I.F.T.	TCP/IP, S.W.I.F.T.	Other (MERVA)	TCP/IP, S.W.I.F.T.
4. Presentation and session layers	TCP/IP, S.W.I.F.T.	TCP/UDP/SNA	SNA (LU0)	Message oriented proprietary	SNA (LU0)	Proprietary	TCP/IP	TCP/IP, S.W.I.F.T.	TCP/IP, S.W.I.F.T	SNA(APPC) & Message oriented middleware (MERVA)	TCP/IP, S.W.I.F.T.
5. Transmission layer	TCP including UDP, S.W.I.F.T.	IP/LU6.2	SNA (LU0)	SNA(LU6.2)	SNA (LU0)	Other (User Program, Terminal I/O Program) &LU0, LU6.2	TCP including UDP	TCP including UDP, S.W.I.F.T.	TCP including UDP, S.W.I.F.T.	SNA (LU 6.2)	TCP including UDP, S.W.I.F.T.
6. Network layer	IP, S.W.I.F.T.	IP, SNA	SNA (PU2)	SNA	X.25	X.25	IP	IP, S.W.I.F.T.	S.W.I.F.T.,IP	SNA (PUT2.1)	IP
7. Data-link layer	Synchronous data link & LAN	FR, SDLC	SDLC	SDLC	SDLC	HDLC	LAN (internal users), WAN (external users)	LAN (internal) WAN (external)	LAN (internal) WAN (external)	SDLC	SDLC & Frame Relay
8. Physical layer	Leased line & ISDN dial-up	Leased line	Leased line	Leased line	Leased line & public network (DDX-Packet)	Leased line, PSTN	Leased line, In-house line (10-BaseT)	Leased line	Leased line & Public Network	Leased line & public network (telephone <dial-up>)	Leased line & public network (S.W.I.F.T.)
9. Back up system at primary site	Hot standby	Hot standby	Hot standby	Hot standby	Hot standby	Hot standby	None	Warm standby	Hot standby	None	Hot standby
10. Back up system at back up site	Hot standby	NA	Hot standby	Hot standby	Hot standby	Hot standby	Hot standby	Warm standby	Hot standby	Hot standby	Warm standby
11. Switch over time[4] on-site/remote	15 min./40 min.	NA	NA/30 min.	Instantly/ 1hour	Instantly / 2 hours	20-30min./ 2 hours	15 min./ 1 hours	15 min./60 min.	20-30 min.	NA/30 min.	15-30 min./NA
12. Average online availability (2003)	99.9%	100%	100%	99.94%	100%	100%	99.9%	99.9%	100%	100%	99.977%

[1] New computer interface for BOJ-NET will be available at the end of September 2004. Key features are (a) changing communication protocol from X.25 to TCP/IP and (b) providing real-time interactive transaction processing (CORBA IIOP over IP-VPN) instead of the current file-based transaction processing.
[2] SWIFT format has been available since January, 2004
[3] For interbank transfer, MT202; for customer transfer MT103 and MT202
[4] Switch over time from active to back-up system for on-site and remote back-up site, respectively

Survey on National RTGS in EMEAP Region

"National RTGS in EMEAP Region" has been updated by the EMEAP IT Directors' Meeting (ITDM) in cooperation with the Working Group on Payment and Settlement Systems. The original survey was conducted in 2001 by the Bank of Japan with cooperation from the Bank of Thailand. Since the China National Advanced Payment System (CNAPS), which is the RTGS system of People's Bank of China, started operation in 2002 and there have been significant changes in technology during these years, the survey was updated to reflect these changes.

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