CPC NOTICE OF CHANGES 1052

DATE: MAY 1, 2021

PROJECT RP0396

The following classification changes will be effected by this Notice of Changes:

Action	Subclass	Group(s)
SCHEME:		
Symbols Deleted:	G06F	2003/0691, 2003/0692, 2003/0694, 2003/0695, 2003/0698
Symbols Deleted Pending Reclassification: (frozen (F))	G06F	2003/0697
Titles Changed:	G06F	3/0601
Warnings New:	G06F	3/06, 2003/0697
Notes New:	G06F	3/0601
DEFINITIONS:		
Definitions Deleted:	G06F	3/061, 3/0602, 3/0604, 3/0655
Definitions Modified:	G06F	3/06, 3/0601, 3/0608, 3/0611, 3/0613, 3/0614, 3/0617, 3/0619, 3/062, 3/0622, 3/0623, 3/0625, 3/0626, 3/0629, 3/0631, 3/0632, 3/0634, 3/0635, 3/0637, 3/0638, 3/064, 3/0641, 3/0643, 3/0644, 3/0646, 3/0647, 3/0649, 3/065, 3/0652, 3/0653, 3/0656, 3/0658, 3/0659, 3/0661, 3/0662, 3/0664, 3/0665, 3/0667, 3/0668, 3/067, 3/0671, 3/0673, 3/0674, 3/0676, 3/0677, 3/0679, 3/068, 3/0682, 3/0683, 3/0685, 3/0686, 3/0688, 3/0689, 3/08

The following subclasses/groups are also impacted by this Notice of Changes (indicate subclasses/groups outside of the project scope, such as those listed in the CRL): G11B

This Notice of Changes includes the following:

1. CLASSIFICATION SCHEME CHANGES

    ☒ A. New, Modified or Deleted Group(s)

    ☒ B. New, Modified or Deleted Warning(s)

    ☒ C. New, Modified or Deleted Note(s)

    ☐ D. New, Modified or Deleted Guidance Heading(s)

2. DEFINITIONS

    ☒ A. New or Modified Definitions (Full definition template)

    ☒ B. Modified or Deleted Definitions (Definitions Quick Fix)

3. ☒ REVISION CONCORDANCE LIST (RCL)

4. ☒ CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)

5. ☒ CHANGES TO THE CROSS-REFERENCE LIST (CRL)

DATE: MAY 1, 2021

PROJECT RP0396

1. CLASSIFICATION SCHEME CHANGES

A. New, Modified or Deleted Group(s)

SUBCLASS G06F - ELECTRIC DIGITAL DATA PROCESSING (computer systems based on specific computational models G06N)

Type*	Symbol	Indent Level Number of dots (e.g. 0, 1, 2)	Title (new or modified) "CPC only" text should normally be enclosed in {curly brackets}**	Transferred to#
T	G06F3/06	1	Digital input from or digital output to record carriers {, e.g. RAID, emulated record carriers, networked record carriers}	
T	G06F3/0601	2	{Interfaces specially adapted for storage systems}	
D	G06F2003/0691	2	{buffering arrangements}	< administrative transfer to G06F3/0656>
D	G06F2003/0692	2	{digital I/O from or to direct access storage devices, e.g. magnetic, optical, magneto-optical disc}	< administrative transfer to G06F3/0673>
D	G06F2003/0694	2	{emulating arrangements, e.g. RAM-disc}	< administrative transfer to G06F3/0664>
D	G06F2003/0695	2	{formatting arrangements}	< administrative transfer to G06F3/0638>
F	G06F2003/0697	2	{device management, e.g. handlers, drivers, I/O schedulers}	G06F 3/06, G06F 3/0601, G06F 3/0602, G06F 3/0604, G06F 3/0605, G06F 3/0607, G06F 3/0608, G06F 3/061, G06F 3/0611, G06F 3/0613, G06F 3/0614, G06F 3/0616, G06F 3/0617, G06F 3/0619, G06F 3/062, G06F 3/0622, G06F 3/0623, G06F 3/0625, G06F 3/0626, G06F 3/0628, G06F 3/0629, G06F 3/0631, G06F 3/0632, G06F 3/0634, G06F 3/0635, G06F 3/0637,

DATE: MAY 1, 2021

PROJECT RP0396

Type*	Symbol	Indent Level Number of dots (e.g. 0, 1, 2)	Title (new or modified) "CPC only" text should normally be enclosed in {curly brackets}**	Transferred to#
				G06F 3/0638, G06F 3/064, G06F 3/0641, G06F 3/0643, G06F 3/0644, G06F 3/0646, G06F 3/0647, G06F 3/0649, G06F 3/065, G06F 3/0652, G06F 3/0653, G06F 3/0655, G06F 3/0656, G06F 3/0658, G06F 3/0659, G06F 3/0661, G06F 3/0662, G06F 3/0664, G06F 3/0665, G06F 3/0667, G06F 3/0668, G06F 3/067, G06F 3/0671, G06F 3/0673, G06F 3/0674, G06F 3/0676, G06F 3/0677, G06F 3/0679, G06F 3/068, G06F 3/0682, G06F 3/0683, G06F 3/0685, G06F 3/0686, G06F 3/0688, G06F 3/0689, G06F 3/08
D	G06F2003/0698	2	{digital I/O from or to serial access storage devices, e.g. magnetic tape}	< administrative transfer to G06F3/0682>

*N = new entries where reclassification into entries is involved; C = entries with modified file scope where reclassification of documents from the entries is involved; Q = new entries which are firstly populated with documents via administrative transfers from deleted (D) entries. Afterwards, the transferred documents into the Q entry will either stay or be moved to more appropriate entries, as determined by intellectual reclassification; T = existing entries with enlarged file scope, which receive documents from C or D entries, e.g. when a limiting reference is removed from the entry title; M = entries with no change to the file scope (no reclassification); D = deleted entries; F = frozen entries will be deleted once reclassification of documents from the entries is completed; U = entries that are unchanged.

DATE: MAY 1, 2021

PROJECT RP0396

NOTES:
- **No {curly brackets} are used for titles in CPC only <u>subclasses</u>, e.g. C12Y, A23Y; 2000 series symbol titles of groups found at the end of schemes (orthogonal codes); or the Y section titles. The {curly brackets} <u>are</u> used for 2000 series symbol titles found interspersed throughout the main trunk schemes (breakdown codes).
- U groups: it is obligatory to display the required "anchor" symbol (U group), i.e. the entry immediately preceding a new group or an array of new groups to be created (in case new groups are not clearly subgroups of C-type groups). Always include the symbol, indent level and title of the U group in the table above.
- All entry types should be included in the scheme changes table above for better understanding of the overall scheme change picture. Symbol, indent level, and title are required for all types .
- "Transferred to" column <u>must</u> be completed for all C, D, F, and Q type entries. F groups will be deleted once reclassification is completed.
- When multiple symbols are included in the "Transferred to" column, avoid using ranges of symbols in order to be as precise as possible.
- For administrative transfer of documents, the following text should be used: "<administrative transfer to XX>", "<administrative transfer to XX and YY simultaneously>", or "<administrative transfer to XX, YY, ...and ZZ simultaneously>" when administrative transfer of the same documents is to more than one place.
- Administrative transfer to main trunk groups is assumed to be the source allocation type, unless otherwise indicated.
- Administrative transfer to 2000/Y series groups is assumed to be "additional information".
- If needed, instructions for allocation type should be indicated within the angle brackets using the abbreviations "ADD" or "INV": <administrative transfer to XX ADD> , <administrative transfer to XX INV>, or < administrative transfer to XX ADD, YY INV, ... and ZZ ADD simultaneously>.
- In certain situations, the "D" entries of 2000-series or Y-series groups may not require a destination ("Transferred to") symbol, however it is required to specify "<no transfer>" in the "Transferred to" column for such cases.
- For finalisation projects, the deleted "F" symbols should have <no transfer> in the "Transferred to" column.
- For more details about the types of scheme change, see CPC Guide.

DATE: MAY 1, 2021

PROJECT RP0396

B. New, Modified or Deleted Warning(s)

SUBCLASS G06F - ELECTRIC DIGITAL DATA PROCESSING (computer systems based on specific computational models G06N)

Type *	Location	Old Warning	New/Modified Warning
N	G06F 3/06		Groups G06F 3/06, G06F 3/0601, G06F 3/0602, G06F 3/0604, G06F 3/0605, G06F 3/0607, G06F 3/0608, G06F 3/061, G06F 3/0611, G06F 3/0613, G06F 3/0614, G06F 3/0616, G06F 3/0617, G06F 3/0619, G06F 3/062, G06F 3/0622, G06F 3/0623, G06F 3/0625, G06F 3/0626, G06F 3/0628, G06F 3/0629, G06F 3/0631, G06F 3/0632, G06F 3/0634, G06F 3/0635, G06F 3/0637, G06F 3/0638, G06F 3/064, G06F 3/0641, G06F 3/0643, G06F 3/0644, G06F 3/0646, G06F 3/0647, G06F 3/0649, G06F 3/065, G06F 3/0652, G06F 3/0653, G06F 3/0655, G06F 3/0656, G06F 3/0658, G06F 3/0659, G06F 3/0661, G06F 3/0662, G06F 3/0664, G06F 3/0665, G06F 3/0667, G06F 3/0668, G06F 3/067, G06F 3/0671, G06F 3/0673, G06F 3/0674, G06F 3/0676, G06F 3/0677, G06F 3/0679, G06F 3/068, G06F 3/0682, G06F 3/0683, G06F 3/0685, G06F 3/0686, G06F 3/0688, G06F 3/0689 and G06F 3/08 are incomplete pending reclassification of documents from group G06F 2003/0697. All groups listed in this Warning should be considered in order to perform a complete search.
N	G06F 2003/0697		Group G06F 2003/0697 is no longer used for the classification of documents as of May 1, 2021. The content of this group is being reclassified into groups G06F 3/06, G06F 3/0601, G06F 3/0602, G06F 3/0604, G06F 3/0605, G06F 3/0607, G06F 3/0608, G06F 3/061, G06F 3/0611, G06F 3/0613, G06F 3/0614, G06F 3/0616, G06F 3/0617, G06F 3/0619, G06F 3/062, G06F 3/0622, G06F 3/0623, G06F 3/0625, G06F 3/0626, G06F 3/0628, G06F 3/0629, G06F 3/0631, G06F 3/0632, G06F 3/0634, G06F 3/0635, G06F 3/0637, G06F 3/0638, G06F 3/064, G06F 3/0641, G06F 3/0643, G06F 3/0644, G06F 3/0646, G06F 3/0647, G06F 3/0649, G06F 3/065, G06F 3/0652, G06F 3/0653, G06F 3/0655, G06F 3/0656, G06F 3/0658, G06F 3/0659, G06F 3/0661, G06F 3/0662, G06F 3/0664, G06F 3/0665, G06F 3/0667, G06F 3/0668, G06F 3/067, G06F 3/0671, G06F 3/0673, G06F 3/0674, G06F 3/0676, G06F 3/0677, G06F 3/0679, G06F 3/068, G06F 3/0682, G06F 3/0683, G06F 3/0685, G06F 3/0686, G06F 3/0688, G06F 3/0689 and G06F 3/08. All groups listed in this Warning should be considered in order to perform a complete search.

*N = new warning, M = modified warning, D = deleted warning

NOTE: The "Location" column only requires the symbol PRIOR to the location of the warning. No further directions such as "before" or "after" are required.

DATE: MAY 1, 2021

PROJECT RP0396

C. New, Modified or Deleted Note(s)

SUBCLASS G06F - ELECTRIC DIGITAL DATA PROCESSING (computer systems based on specific computational models G06N)

Type*	Location	Old Note	New/Modified Note
N	G06F 3/0601		{In this subgroup the following classification rules must be observed: For a complete classification in the field of G06F 3/0601 documents should receive classification symbols as follows: - at least one symbol in G06F 3/0602 - G06F 3/0626 for the technical effect achieved and - at least one symbol in G06F 3/0628 - G06F 3/0667 for the technique used and - at least one symbol in G06F 3/0668 - G06F 3/0689 for the infrastructure involved. The classification of "additional information" is optional. CPC symbols in the range G06F 2206/1004 - G06F 2206/1014 should be used for classifying "additional information".}

*N = new note, M = modified note, D = deleted note

NOTE: The "Location" column only requires the symbol PRIOR to the location of the note. No further directions such as "before" or "after" are required.

2. A. DEFINITIONS (modified)

G06F3/06

Definition statement

<u>Delete</u>:   The entire Definition statement.

<u>Delete</u>:   The entire Special rules of classification section and text.

G06F3/0601

Definition statement

This place covers:

<u>Replace</u>:   The third paragraph of the Definition statement with the updated one below:

> Interfaces to an emulated rotating storage device in (flash) memory.

Special rules of classification

<u>Replace</u>:   Existing Special rules of classification text with the text shown below:

Each document should receive regarding "invention information":
- at least one classification in the range G06F3/0602-G06F3/0626 for the technical effect achieved and
- at least one classification in the range G06F3/0628-G06F3/0667 for the technique used and
- at least one classification in the range G06F3/0668-G06F3/0689 for the infrastructure involved.

The classification of "additional information" is optional. CPC symbols in the range G06F2206/1004-G06F2206/1014 should be used for classifying "additional information".

Glossary of terms

Replace: Existing Glossary of terms with the new one below:

In this place, the following terms or expressions are used with the meaning indicated:

Storage system	An integrated collection of (a.) storage controllers and/or host bus adapters, (b.) storage devices such as disks, CD-ROMs, tapes, media loaders and robots, and (c.) any required control software, that provides storage services to one or more computers

Synonyms and Keywords

Replace: Existing Synonyms and keywords with the new one below:

In patent documents, the following words/expressions are often used as synonyms:

- host
- computer
- PC
- PDA
- smartphone
- (micro)processor
- CPU
- terminal
- client

G06F3/0608

Delete: Relationships with other classification places section

Insert: New Special rules of classification section and text.

Special rules of classification

This group is often combined with the technique G06F3/0641: data de-duplication.

G06F3/0611

Definition statement

Replace: Existing Definition statement with the one below:

> Reducing I/O operation latency time, i.e. the time between the making of an I/O request and the completion of the request's execution.

G06F3/0613

Definition statement

Replace: Existing Definition statement with the one below:

> Increasing I/O operation throughput, i.e. the number of I/O requests satisfied in a given time e.g. expressed in I/O requests/second (IOPS).

G06F3/0614

Definition statement

Replace: Existing Definition statement with the one below:
> Only reliability effects with a technique specific for G06F3/06 should be classified in this subgroup range.

G06F3/0617

Definition statement

Replace: Existing Definition statement with the one below:

Increasing availability, i.e. the amount of time the system is available during those time periods it is expected to be available, measured in e.g. hours of downtime in a year.

G06F3/0619

References

Delete: Limiting references section and table.

Insert: New Informative references section and table.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Adding special bits or symbols to the coded information in memories:	G06F11/1008
Backing up (Point in time copy), restoring or mirroring files or drives:	G06F11/1446
Redundancy in hardware by mirroring:	G06F11/2056
Error detection or correction in digital recording or reproducing:	G11B20/18

G06F3/062

Delete: Definition statement.

References

Delete: Limiting references section and table.

Insert: New Informative references section and table.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Protecting data against unauthorised access or modification	G06F21/60
Protecting computer components used for data storage	G06F21/78
Arrangements for network security	H04L29/06551

G06F3/0622

Delete: Limiting references section and table.

G06F3/0623

Delete: Limiting references section and table.

G06F3/0625

Definition statement

Replace: Existing Definition statement text with the modified text below:

Reducing the power consumption of a storage system, i.e. power efficiency.

Power saving in storage systems with a plurality of storage devices external to the computer.

References

Delete: Limiting references section and table.

Replace: Informative references tab le with the one below.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Power saving in a single storage device inside a computer	G06F1/3221
Driving, starting, stopping record carriers	G11B19/00

Special rules of classification

Replace*:*   The existing Special rules of classification section text with the modified text below:

This group is usually combined with the technique G06F3/0634 (configuration or reconfiguration of storage systems by changing the state or mode of one or more devices).

This group is usually combined with the infrastructure G06F3/0689 (disk arrays) or G06F3/067 (distributed storage).

G06F3/0626

Delete: Relationships with other classification places section and text.

Insert: New Special rules of classification section and text.

Special rules of classification

This group is often combined with G06F3/0658 (controller construction) in order to characterise the technique for the "invention information", e.g. System On Chip (SOC) controller.

G06F3/0629

Definition statement

Replace: The first sentence of the Definition statement with the modified one below:

Configuration or reconfiguration aspects.

G06F3/0631

Definition statement

<u>Delete</u>: The second and third paragraphs from the Definition statement.

Relationships with other classification places

<u>Insert</u>: New Relationships with other classification places section and text.

Virtualisation techniques for the allocation of storage areas such as thin-provisioning are classified in G06F3/0665.

References

<u>Delete</u>: Limiting references section and table.

<u>Replace</u>: Existing Informative references table with the modified one below:

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Management of already existing partitions	G06F3/0644
Allocation of resources in multiprogramming arrangements	G06F9/50
Addressing or allocation	G06F12/02

<u>Delete</u>: Glossary of terms section and text.

G06F3/0632

Definition statement

<u>Replace</u>: The numbering system for the Definition statement with bullets as shown below:

- The startup and initial configuration of a storage device, system, piece of software or network.
- The process of installing or removing hardware or software components required for a system or subsystem to function.
- Assignment of the operating parameters of a system, subsystem or device, such as designating a disk array's member disks or extents and parameters such as stripe depth, RAID model, cache allowance, etc.
- The collection of a system's hardware and software components and operating parameters.

Glossary of terms

Replace: Existing Glossary of terms with the following modified one shown below:

Discovery of storage device array configuration	Assignment of the disks and operating parameters for a disk array by setting parameters such as stripe depth, RAID model, cache allowance, spare disk assignments, etc. The arrangement of disks and operating parameters that results from such an assignment.

G06F3/0634

Glossary of terms

Replace: Existing Glossary of terms with the modified one below:

Massive Array of Idle Disks (MAID)	A storage system comprising an array of disk drives that are powered down individually or in groups when not required. MAID storage systems reduce the power consumed by a storage array, at the cost of increased Mean Time To Data.

Synonyms and Keywords

Replace: Existing Synonyms and keywords with the modified one below:

MAID	Massive Array of Idle Disks

G06F3/0635

Delete: Relationships with other classification places section and text.

Insert: New Special rules of classification section and text.

Special rules of classification

This group is usually combined with G06F3/0607: improving administration by facilitating the process of upgrading existing storage systems.

Glossary of terms

Replace: Existing Glossary of terms with the modified one below:

Access path	The combination of adapters, addresses and routes through a switching fabric used by a computer to communicate with a storage device.

G06F3/0637

References

Delete: Limiting references section and table.

Insert: New Informative references section and table.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Protecting computer components used for data storage	G06F21/78
Access control in arrangements for network security e.g. Access Control Lists (ACL)	H04L29/06823

Special rules of classification
Insert: A space after the colon as shown below:

G06F3/0622: securing

G06F3/0638

Definition statement

Replace: Existing Definition statement with the modified one below:

Data organising, formatting or addressing, e.g. compression of data in general in a storage interface.

Mapping aspects: conversion between two address spaces, such as the conversion between physical disk block addresses and logical disk block addresses of virtual disks presented to operating environments by control software, i.e. by using mapping tables which contain the correspondence between the two address spaces being mapped to each other.

Partitioning of storage systems, i.e. the creation of partitions.

Relationships with other classification places

Insert: New Relationships with other classification places section and text.

- Creation of partitions in a formatted disk is classified in G06F3/0638.
- Allocation of existing partitions is classified in G06F3/0631.

References

Delete: Limiting references section and table.

Insert: New Informative references section and table.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Translation of protocol format and protocol data in a data movement	G06F3/0661
Image compression	G06T9/00
Audio compression	G10L19/00
Time compression or expansion in a recording device	G11B20/00007

Compression in general	H03M7/30
Data compression in computer networks	H04L29/0604
Video compression	H04N19/00

Glossary of terms

Insert: New Glossary of terms.

Partitioning	Presentation of the usable storage capacity of a disk or array to an operating environment in the form of several virtual disks whose aggregate capacity approximates that of the underlying physical or virtual disk. Partitioning is common in MS-DOS, Windows, and UNIX environments. Partitioning is useful with hosts that cannot support the full capacity of a large disk or array as one device. It can also be useful administratively, for example, to create hard subdivisions of a large virtual disk.

G06F3/064

Glossary of terms

Replace: Existing Glossary of terms with the updated one below:

Block	The unit in which data is stored and retrieved on disk and tape devices; the atomic unit of data recognition (through a preamble and block header) and protection (through a CRC or ECC).
Block addressing	An algorithm for uniquely identifying blocks of data stored on disk or tape media by number, and then translating these numbers into physical locations on the media.

G06F3/0641

Definition statement

Replace: Existing Definition statement with the one below:

This place covers:

Techniques related to data de-duplication, i.e. the replacement of multiple copies of data - at variable levels of granularity - with references to a shared copy in order to save storage space and/or bandwidth.

References

Delete: Limiting references section and table.

Insert: New Informative references section and table.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Using de-duplication of the data stored as backup	G06F11/1453
File systems; File servers	G06F16/10
Compression in general	H03M7/30

Delete: Glossary of terms section and text.

G06F3/0643

References

Delete: Limiting references section and table.

Insert: New Informative references section and table.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

User address space allocation	G06F12/0223
File systems; file servers	G06F16/10
Processing unordered random access data using directory or table look-up	G06F16/9017

Table of contents on record carriers (VTOC)	G11B27/327

G06F3/0644

References

Delete: Limiting references section and table.

Replace: Informative references table with the modified one below.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Creation of space entities (allocating resources to storage systems)	G06F3/0631
User address space allocation	G06F12/0223
File systems; File servers	G06F16/10
Table of contents on record carriers (VTOC)	G11B27/327
Arrangements and networking functions for distributed storage of data in a network	H04L29/08549, H04L67/1097

G06F3/0646

Definition statement

Replace: Existing Definition statement with the modified one below:

Aspects of horizontal moving of data between storage devices or systems.

G06F3/0647

Delete: Limiting references section and table

Special rules of classification

Replace: Special rules of classification section text with the modified text below:

HSM and Tiered storage aspect are usually combined with G06F3/0685 (hierarchical storage) in order to characterise the infrastructure.

Glossary of terms

Replace: Glossary of terms with the new one below:

Tiered storage	Storage that is physically partitioned into multiple distinct classes based on price, performance or other attributes. Data may be dynamically moved among classes in a tiered storage implementation based on access activity or other considerations.
Hierarchical Storage Management (HSM)	The automated migration of data objects among storage devices, usually based on inactivity. Hierarchical storage management is based on the concept of a cost-performance storage hierarchy. By accepting lower access performance (higher access times), one can store objects less expensively.

G06F3/0649

Definition statement

Replace: Existing Definition statement with modified one below:

Data Lifecycle Management (DLM) comprising the policies, processes, practices, services and tools used to align the business value of data with the most appropriate and cost-effective storage infrastructure from the point in time when data is created through its final disposition. Data is aligned with business requirements through management policies and service levels associated with performance, availability, recoverability, cost, etc. DLM is a subset of Information Lifecycle Management (ILM).

By automatically moving less frequently accessed objects to lower levels in the hierarchy, higher cost storage is freed for more active objects, and a better overall cost to performance ratio is achieved.

References

Delete: Limiting references section and table.

Insert: 2 new Informative references shown below.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Details of archiving in file system administration	G06F16/113
Details of hierarchical storage management (HSM) systems	G06F16/185

Synonyms and Keywords

Replace: Existing Synonyms and keywords with modified text below:

- Retention policy
- Retention time

G06F3/065

References

Delete: The following extraneous text from the Informative references section:

> Redundancy in hardware by mirroring: G06F 11/2056 Backing up (Point in time copy), restoring or mirroring files or drives: G06F 11/1402

Special rules of classification

Replace: The word "subrange" with the word "subgroups."

Synonyms and Keywords

Replace: Existing Synonyms and keywords with the modified section below:
- Remote copy

- Mirroring
- Snapshot

G06F3/0652

Definition statement

<u>Replace</u>:   Existing Definition statement with the modified one below:

Erasing of data in storage systems including secure erasure.

References

<u>Delete</u>:   The Limiting references section and table.

Glossary of terms

<u>Replace</u>:   The Glossary of terms section with the modified one below:

Data shredding	The technique of deleting data that is intended to make the data unrecoverable. One such process consists of repeated overwrites of data on disk. Data shredding is not generally held to make data completely unrecoverable in the face of modern forensic techniques—that requires shredding of the disks themselves.

G06F3/0653

Definition statement

<u>Replace</u>:   Existing Definition statement with the modified one below:

Monitoring aspects related to storage interfaces, i.e. extra functionality for observing properties of a running storage device or storage system in its normal operating conditions without inputting test data.

References

Delete: Limiting references section and table.

Insert: New Informative references section and table.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Thermal management in cooling means	G06F1/206
Power management	G06F1/3203
Monitoring for error detection	G06F11/0751
Verification or detection of system hardware configuration:	G06F11/2002
Monitoring per se of computing systems	G06F11/34
Intrusion detection	G06F21/566
Monitoring of control systems	G05B23/02
Monitoring, i.e. supervising the progress of recording or reproducing	G11B27/36
Monitoring network traffic for security	H04L29/06884
Network monitoring	H04L43/00
Monitoring testing in wireless networks	H04W24/00

G06F3/0656

References

Delete: Limiting references section and table.

Insert: New Informative references section and table.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Changing the speed of data flow, e.g. FIFO buffers per se	G06F5/06
Partitioned buffers	G06F5/065
Caches for peripheral storage systems, e.g. disk caches	G06F12/0866
Detection or prevention of read or write errors by using a data buffer	G11B19/044

Glossary of terms

Replace: Existing Glossary of terms with the updated one below:

Buffer	A region of a physical memory storage used to temporarily hold data while it is being moved from one place to another. It often adjusts timing by implementing a queue algorithm in memory, simultaneously writing data into the queue at one rate and reading it at another rate.

Synonyms and Keywords

Replace: Existing Synonyms and keywords section with the modified one below:

- FIFO
- queue

G06F3/0658

References

Delete: Limiting references section and table.

Insert: The following new rows to the Informative references table

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Disposition of constructional parts in recording /reproducing devices	G11B33/12
Electrical connectors	H01R13/00

G06F3/0659

References

Delete: Limiting references section and table.

Insert: New Informative references section and table.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Data buffering	G06F3/0656

Glossary of terms

Replace: Existing Glossary of terms with the updated one below:

I/O scheduling	Term used to describe the method computer operating systems decide the order in which block I/O operations will be submitted to storage volumes.

Synonyms and Keywords

Replace: Existing Synonyms and keywords section with the modified one below:

- I/O scheduling
- disk scheduling

G06F3/0661

Definition statement

Delete: The following text from the Definition statement:

    Reference document: US2010251009

References

Delete: Limiting references section and table.

Insert: New Informative references section and table.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

| Information transfer using universal interface adapter: | G06F13/382 |
| Coupling between buses in general using bus bridges | G06F13/4027 |

G06F3/0662

Definition statement

Replace: Existing Definition statement with the modified one below:

Storage virtualisation, which refers to:

- The act of abstracting, hiding, or isolating the internal functions of a storage (sub)system or service from applications, host computers, or general network resources, for the purpose of enabling application and network-independent management of storage or data.

- The application of virtualisation to storage services or devices for the purpose of aggregating functions or devices, hiding complexity, or adding new capabilities to lower level storage resources.

G06F3/0664

Definition statement

Replace: Existing Definition statement with the following modified one:

Devices presented to an operating environment by control software or by a volume manager. From an application standpoint, a virtual device is equivalent to a physical one. In some implementations, virtual devices may differ from physical ones at the operating system level, e.g., booting from a host based disk array may not be possible.

Storage device emulation, e.g. disk emulation.

Storage (sub)system emulation, e. g. Virtual Tape System.

Port virtualisation on a storage network switch, storage interface virtualisation.

References

Delete: Limiting references section and table.

Insert: New Informative references section and table.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Program control for peripheral devices where the program performs an input/output emulation function	G06F13/105

Glossary of terms

Replace: Existing Glossary of terms with the modified one below:

Virtual disk	A set of disk blocks presented to an operating environment as a range of consecutively numbered logical blocks with disk-like storage and I/O semantics.

Virtual tape	A virtual device with the characteristics of a tape.

G06F3/0665

Definition statement

Replace: Existing Definition statement with the modified one below:

Storage area virtualisation, i.e. the act of applying virtualisation to one or more area based (storage) services for the purpose of providing a new aggregated, higher level— e.g., richer, simpler, more secure—storage area service to clients.

Thin provisioning.

Dynamic allocation of logical volumes.

Glossary of terms

Replace: Existing Glossary of terms with the modified one below:

Thin provisioning (also, dynamic provisioning)	A technology that allocates the physical capacity of a volume or file system as applications write data, rather than preallocating all the physical capacity at the time of provisioning.

G06F3/0667

Definition statement

Replace: Existing Definition statement with the modified one below:

Object virtualisation:

- The use of virtualisation to present several underlying objects as one single composite object.
- The use of virtualisation to present an integrated object interface when object data and metadata are managed separately in the storage system.

References

Informative references:

Delete: The extraneous text below the Informative references table.

Delete: The colon after the word "servers."

G06F3/0668

Delete: The Definition statement section and text.

G06F3/067

Definition statement

Insert: The letter "s" at the end of the word "architecture."

Insert: The following new second paragraph:

Depicted below, an exemplary connection of storage device to a host through a network.

References

Delete: Limiting references section and table.

Insert: New Informative references section and table.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Distributed file systems implemented using NAS architecture	G06F16/1824
Network related aspects of SANs, NASes	H04L29/08549, H04L67/1097

Delete: Glossary of terms section and text and image.

G06F3/0671

Definition statement

<u>Insert</u>:   The letter "s" at the end of the word "architecture."

<u>Insert</u>:   The following new second paragraph and image:

> Depicted below, an exemplary connection of storage device(s) to a host through a direct connection.

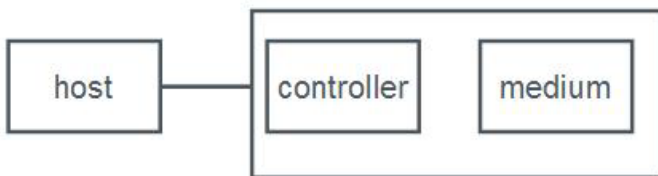<u>Delete</u>:   Glossary of terms section and image.

G06F3/0673

Definition statement

<u>Replace</u>:   Existing Definition statement with the modified one below.

<u>Insert</u>:   New image into the Definition statement.

Storage systems comprising a single controller controlling one or more storage media, e.g. drums.

Depicted below, an exemplary architecture for a single storage device.

<u>Delete</u>:   Glossary of terms section and image.

G06F3/0674

Definition statement

<u>Replace</u>:   Existing Definition statement with the modified one below.

Storage devices being a spinning disk drive, i.e. a non-volatile, randomly addressable, data storage device.

G06F3/0676

Definition statement

<u>Replace</u>:   Existing Definition statement with the modified one below.

Storage devices being a magnetic disk drive, e.g. HDD, DASD.

G06F3/0677

Definition statement

<u>Replace</u>:   Existing Definition statement with the modified one below.

Optical disk drives, e.g. CDROM, DVD, WORM optical disk.

G06F3/0679

Definition statement

<u>Replace</u>:   Existing Definition statement with the modified one below.

Semiconductor storage devices, e.g. SSD (solid state drive), flash memory, one time programmable memory (OTP).

References

Informative references:

<u>Delete</u>:   The colons at the end of each reference text section.
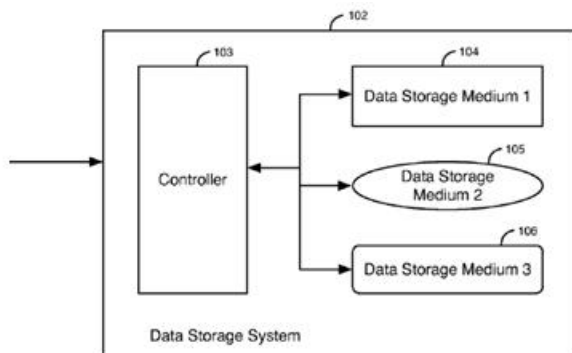
G06F3/068

Definition statement

<u>Replace</u>:   Existing Definition statement with the modified one below:

> Storage devices comprising a controller and multiple storage medium types, e.g. magnetic and semiconductor mediums sharing the same controller.

<u>Insert</u>:   The following new image into the Definition statement.

<u>Delete</u>:   Glossary of terms section and image.

G06F3/0682

Definition statement

<u>Replace</u>:   Existing Definition statement with the modified one below.

Storage devices being spinning tape devices, i.e. a non-volatile, serial addressable data storage device.
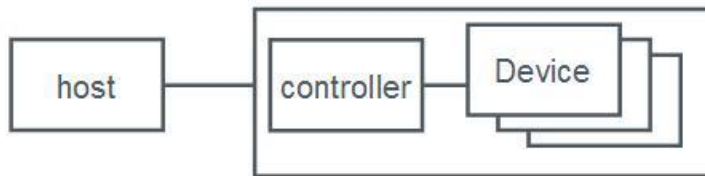
G06F3/0683

Definition statement

Replace: Existing Definition statement with the modified one below.

Insert: New image in to the Definition statement.

Storage systems comprising multiple controllers and a plurality of storage devices.

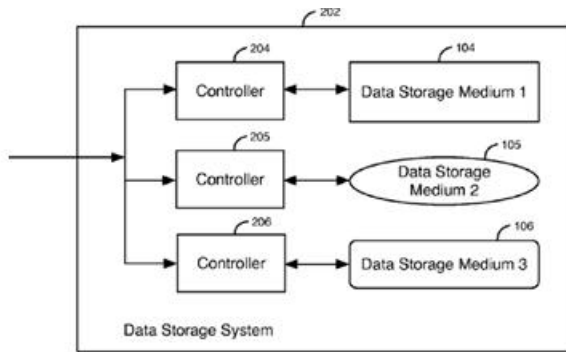Delete: Glossary of terms section and image.

G06F3/0685

Definition statement

Replace: Existing Definition statement with the modified one below.

Insert: New image in to the Definition statement.

Storage systems comprising multiple controllers and multiple storage medium types, e.g. SSD, HDD and tapes combined; FC-HDD, SATA-HDD, SCSI-HDD combined.

Delete: Glossary of terms section and image.

G06F3/0686

Definition statement

Replace: Existing Definition statement with the modified one below.

Storage systems providing automatic access to multiple media cartridges typically via an automatic loading robot, e.g. tape library, media changer, juke box.
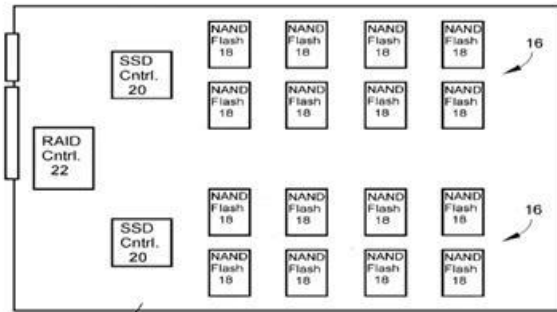
G06F3/0688

Definition statement

Replace: Existing Definition statement with the modified one below.

Insert: New image in to the Definition statement.

Storage systems comprising multiple controllers and multiple semiconductor storage devices.

Delete: Glossary of terms section and image.

G06F3/0689

Definition statement

Replace: Existing Definition statement with the modified one below.

Storage systems comprising multiple controllers and multiple spinning disk drives, e.g. RAID, JBOD.

References

Delete: Limiting references section and table.

Insert: New Informative references section and table.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Error Correction Coding (ECC) for RAID	G06F11/1076

Glossary of terms

Replace: Existing Glossary of terms with the modified one below.

RAID	Redundant Array of Independent Disks (originally: of Inexpensive disks)
JBOD	Just a Bunch Of Drives

G06F3/08

References

<u>Replace</u>: Existing Informative references table with the modified one below.

Informative references:

Attention is drawn to the following places, which may be of interest for search:

Information transfer using universal interface adapter	G06F13/382
Methods or arrangements for sensing record carriers	G06K7/00
Memory card, integrated circuit (IC) card, smart card, record carriers for use with machines and with at least a part designed to carry digital markings	G06K19/00
Record carriers with integrated circuit chips	G06K19/07
Coded identity card or credit card with a coded signal	G07F7/10
Active credit-cards provided with means to personalise their use	G07F7/1008

2. B. DEFINITIONS QUICK FIX

Symbol	Location of change (e.g., section title)	Existing reference symbol or text	Action; New symbol; New text
G06F 3/061	Definition		Delete definition
G06F 3/0602	Definition		Delete definition
G06F 3/0604	Definition		Delete definition
G06F 3/0655	Definition		Delete definition

NOTES:
- The table above is used for corrections or modifications to existing definitions, e.g. delete an entire definition or part thereof; propose new wording or modify wording of a section, change the symbol the definition is associated with, change or delete a reference symbol, etc.
- Do not delete (F) symbol definitions.

3.   REVISION CONCORDANCE LIST (RCL)

Type*	From CPC Symbol (existing)	To CPC Symbol(s)
D	G06F 2003/0691	< administrative transfer to G06F 3/0656>
D	G06F 2003/0692	< administrative transfer to G06F 3/0673>
D	G06F 2003/0694	< administrative transfer to G06F 3/0664>
D	G06F 2003/0695	< administrative transfer to G06F 3/0638>
F	G06F 2003/0697	G06F 3/06, G06F 3/0601, G06F 3/0602, G06F 3/0604, G06F 3/0605, G06F 3/0607, G06F 3/0608, G06F 3/061, G06F 3/0611, G06F 3/0613, G06F 3/0614, G06F 3/0616, G06F 3/0617, G06F 3/0619, G06F 3/062, G06F 3/0622, G06F 3/0623, G06F 3/0625, G06F 3/0626, G06F 3/0628, G06F 3/0629, G06F 3/0631, G06F 3/0632, G06F 3/0634, G06F 3/0635, G06F 3/0637, G06F 3/0638, G06F 3/064, G06F 3/0641, G06F 3/0643, G06F 3/0644, G06F 3/0646, G06F 3/0647, G06F 3/0649, G06F 3/065, G06F 3/0652, G06F 3/0653, G06F 3/0655, G06F 3/0656, G06F 3/0658, G06F 3/0659, G06F 3/0661, G06F 3/0662, G06F 3/0664, G06F 3/0665, G06F 3/0667, G06F 3/0668, G06F 3/067, G06F 3/0671, G06F 3/0673, G06F 3/0674, G06F 3/0676, G06F 3/0677, G06F 3/0679, G06F 3/068, G06F 3/0682, G06F 3/0683, G06F 3/0685, G06F 3/0686, G06F 3/0688, G06F 3/0689, G06F 3/08
D	G06F 2003/0698	< administrative transfer to G06F 3/0682>

* C = entries with modified file scope where reclassification of documents from the entries is involved; Q = new entries which are firstly populated with documents via administrative transfers from deleted (D) entries. Afterwards, the transferred documents into the Q entry will either stay or be moved to more appropriate entries, as determined by intellectual reclassification; D = deleted entries; F = frozen entries will be deleted once reclassification of documents from the entries is completed.

NOTES:
- Only C, D, F, and Q type entries are included in the table above.
- When multiple symbols are included in the "To" column, do not use ranges of symbols.
- For administrative transfer of documents, the following text should be used: "< administrative transfer to XX>", "<administrative transfer to XX and YY simultaneously>", or "<administrative transfer to XX, YY, ...and ZZ simultaneously>" when administrative transfer of the same documents is to more than one place.
- Administrative transfer to main trunk groups is assumed to be the source allocation type, unless otherwise indicated.
- Administrative transfer to 2000/Y series groups is assumed to be "additional information".
- If needed, instructions for allocation type should be indicated within the angle brackets using the abbreviations "ADD" or "INV": <administrative transfer to XX ADD>, <administrative transfer to XX INV>, or < administrative transfer to XX ADD, YY INV, ... and ZZ ADD simultaneously>.
- In certain situations, the "D" entries of 2000-series or Y-series groups may not require a destination ("To") symbol, however it is required to specify "<no transfer>" in the "To" column for such cases.
- RCL is not needed for finalisation projects.

DATE: MAY 1, 2021

PROJECT RP0396

4. CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)

CPC	**IPC**	**Action***
G06F 2003/0691		DELETE
G06F 2003/0692		DELETE
G06F 2003/0694		DELETE
G06F 2003/0695		DELETE
G06F 2003/0698		DELETE

*Action column:
- For an (N) or (Q) entry, provide an IPC symbol and complete the Action column with "NEW."
- For an existing CPC main trunk entry or indexing entry where the existing IPC symbol needs to be changed, provide an updated IPC symbol and complete the Action column with "UPDATED."
- For a (D) CPC entry or indexing entry complete the Action column with "DELETE." IPC symbol does not need to be included in the IPC column.
- For an (N) 2000 series CPC entry which is positioned within the main trunk scheme (breakdown code) provide an IPC symbol and complete the action column with "NEW".
- For an (N) 2000 series CPC entry positioned at the end of the CPC scheme (orthogonal code), with no IPC equivalent, complete the IPC column with "CPCONLY" and complete the action column with "NEW".

NOTES:
- F symbols are <u>not</u> included in the CICL table above.
- T and M symbols are not included in the CICL table above unless a change to the existing IPC is desired.

5. CROSS-REFERENCE LIST (CRL)

Definitions references impacted by this revision project

Location of reference to be changed	Referenced subclass or group to be changed	Section of definition	Action; New reference symbol; New text
G11B27/00	G06F2003/0692	Limiting references	Move reference from Limiting references to Informative references, replacing symbol with G06F3/0673

NOTES:
- The CRL tables above are used for changes to locations **outside** of the project scope. Changes to references in scheme titles or definitions <u>inside</u> the project scope will be reflected in the "scheme change" template or one of the "definition" templates.
- In addition to other changes proposed in the tables above, in the column titled "Referenced subclass or group to be changed," **referenced** D symbols should indicate an action of "delete" or should indicate a replacement symbol and **referenced** F symbols should indicate a replacement symbol.
- When a reference is deleted, text related to that reference will also be deleted unless other references or a range of references associated with the same text remain.