EUROPEAN PATENT OFFICE
U.S. PATENT AND TRADEMARK OFFICE

CPC NOTICE OF CHANGES 1811

DATE: JANUARY 1, 2026

PROJECT MP12726

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

Action	Subclass	Group(s)
SCHEME:		
Titles Changed:	G06F	11/14, 11/1446, 11/1471, 11/1474, 11/1479, 11/1482, 11/1487, 11/1489, 11/1492, 11/1497
Indents Changed:	G06F	11/1446, 11/1448, 11/1451, 11/1453, 11/1456, 11/1458, 11/1461, 11/1464, 11/1466, 11/1469, 11/1471, 11/1474
DEFINITIONS:		
Definitions Modified:	G06F	11/14, 11/1446, 11/1469, 11/1471, 11/1474, 11/1479, 11/1482, 11/1492, 11/1497

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): G06F 3/0614, G06F 3/0617, G06F 3/0619, G06F 11/0703, G06F 11/1415, G06F 11/3055, G06F 11/36, G06F 12/0804, G06F 16/00, G06F 16/10, G06F 16/11, G06F 16/113, G06F 16/122, G06F 16/128, G06F 16/174, G06F 16/185, G11B 25/10, G11B 27/00, H04L 41/06, H04L 41/0856, H04L 41/12, H04L 67/1048

This Notice of Changes includes the following *[Check the ones included]:*

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)

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 "CPC only" text should normally be enclosed in {curly brackets}**	Transferred to#
M	G06F 11/14	2	Error detection or correction of the data by redundancy in operations (error detection or correction of the data by redundancy in hardware G06F11/16)	
M	G06F 11/1446	3	Point-in-time backing up or restoration of persistent data	
M	G06F 11/1448	4	{Management of the data involved in backup or backup restore}	
M	G06F 11/1451	5	{by selection of backup contents}	
M	G06F 11/1453	5	{using de-duplication of the data}	
M	G06F 11/1456	4	{Hardware arrangements for backup}	
M	G06F 11/1458	4	{Management of the backup or restore process}	
M	G06F 11/1461	5	{Backup scheduling policy}	
M	G06F 11/1464	5	{for networked environments}	
M	G06F 11/1466	5	{to make the backup process non-disruptive}	
M	G06F 11/1469	5	{Backup restoration techniques}	
M	G06F 11/1471	3	involving logging of persistent data for recovery	
M	G06F 11/1474	3	in transactions (updating of structured data in databases G06F 16/23)	
M	G06F 11/1479	3	Generic software techniques for error detection or fault masking	
M	G06F 11/1482	4	using middleware or operating system [OS] functionalities	
M	G06F 11/1487	4	using N-version programming	
M	G06F 11/1489	4	using recovery blocks	
M	G06F 11/1492	4	using run-time replication performed by the application software, e.g. N-modular type	
M	G06F 11/1497	3	Time redundant execution of software on a single processing unit	

*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.

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.

2. A. DEFINITIONS (modified)

G06F11/14

Definition statement

Replace: The existing Definition statement with the following updated statement.

Prophylactic additional saving-related measures like check-pointing, backing-up or state copying, which are performed before the occurrence of a fault in order to be able to recover or restore (at least partially) in case a fault occurs in the future, and which do not rely on hardware redundancy.

Corresponding reverse operations of restoring and/or recovering and/or rolling back, since these are performed after the occurrence of a fault. The same holds for any type of redoing. All these activities are considered particular cases of error correction.

Retrying an operation may be part of an error detection mechanism when used in conjunction with a counting or time-out scheme. It may constitute an error correction when it is used to overcome a transient error. In both cases it is a mechanism used after the occurrence of a fault.

Insert: The following new Limiting references section.

References

Limiting references

This place does not cover:

Error detection or correction of the data by redundancy in hardware	G06F11/16

G06F11/1446

References

Informative references

Replace: The existing Informative references table with the following updated table.

Data re-synchronization of a redundant component, or initial sync of replacement, additional or spare unit	G06F11/1658
Mirroring	G06F11/2056
Redundant storage or storage space	G06F11/2094
Maintaining the standby controller/processing unit updated for active fault-masking	G06F11/2097
Data archiving in file systems	G06F16/113
Replicated file systems	G06F16/184
Replication in distributed database systems	G06F16/27

G06F11/1469

Delete: The entire Relationships section.

Insert: The following new Informative references section.

References

Informative references

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

Horizontal data movement in storage systems, i.e. moving data in between storage devices or systems	G06F3/0646
Migration of file systems	G06F16/119
Hierarchical storage management systems	G06F16/185

Database migration support	G06F16/214

G06F11/1471

References

Delete: The entire Limiting references section.

Informative references

Replace: The existing Informative references table with the following updated table.

Journaling for asynchronous mirroring	G06F11/2074
Change logging, detection and notification in database systems	G06F16/2358

Glossary of terms

Replace: The capital letters in the left column with lowercase, so that the updated Glossary of terms table appears as follows.

logging	recording physical or logical changes to stored persistent data to allow a system to recover from crashes or other errors and maintain the stored persistent data in a consistent state.
journal	is a chronological record of data processing operations. It is considered equivalent to logical logging.

G06F11/1474

Definition statement

Replace: The existing Definition statement with the following updated statement.

General recovery techniques of transactional systems.

Attempting to recover from errors within transactions that create/update/modify data. The term transaction is understood broadly.

References

Insert: The following new Limiting references section.

Limiting references

This place does not cover:

Updating of structured data in databases	G06F16/23

Informative references

Replace: The existing Informative references table with the following updated table.

Error recovery for (main) memory accesses implemented as transactions	G06F11/141
Transactional file systems	G06F16/1865

Delete: The entire Special rules section.

G06F11/1479

Definition statement

Replace: The existing Definition statement with the following updated statement.

All techniques implemented by software means, i.e. where the fault tolerance does not result from the hardware and is not bound to a particular redundant hardware architecture.

Software architectures and structural approaches independent of the particular problem solved or function that is achieved. As a consequence, documents describing such techniques for a particular purpose or hardware architecture as covered by G06F11/14 and G06F11/16 should be classified here as well.

Documents where the kind of fault tolerance used (active-active, voting, active-passive, ...) is fixed by the hardware architecture and cannot be influenced by the software, should not be classified in this group.

Examples are:
- Fault-tolerance using data-diversity (e.g. by using different equivalent input data sets for each retry of a function), corrective actions e.g. following a plausibility check.
- Measures taken before run time (e.g. duplication of instructions for comparison at compile time) or robust data structures.

Counterexample: the operating system for a Tandem Himalaya system will not be classified here, because it is bound to a hardware architecture that provides the fault tolerance and it does not employ any of the generic techniques covered by G06F11/1479.

G06F11/1482

Definition statement

Replace: The existing Definition statement with the following updated statement.

Software layers (on top of the operating system or integrated in the operating system) which make applications which are not fault-tolerant run in a fault tolerant way. Typically, this is done by scheduling requests of the application more than once.

Examples:
- fault tolerant cluster software;
- OS that detects a faulty process and creates a further copy of the same process on the same processor (but potentially in another memory area).

Special rules of classification

Replace: The existing Special rules text with the following updated text.

If the software layer implements an application restart or rejuvenation mechanism, this feature is to be additionally classified in G06F11/1438.

Documents where there is necessarily some hardware redundancy should be classified using indexing codes, as well as in the HW redundancy groups.

Documents which describe said middleware/OS techniques in combination with only one redundant hardware architecture should always be classified into G06F11/16, but where said techniques are explicitly suitable for other redundant hardware architectures, these documents should be classified in G06F11/1482 as well.

Restart related aspects of the second example should be classified additionally in G06F11/1438.

Note that G06F11/1482 as such does not imply failover mechanisms, although the underlying hardware becomes redundant because of the software layer. Hence, this hardware redundancy aspect requires classification as well, in this particular case in G06F11/2023.

G06F11/1492

Definition statement

Replace: The existing Definition statement with the following updated statement.

In contrast with G06F11/1482, in this group the redundancy is inherent in the application itself. Thus, the application does not rely on any other layer to be fault tolerant. The redundant portions are necessarily identical, since otherwise the redundancy is not realized at runtime, but is hard coded.

References

Informative references

Replace: The existing Informative references table with the following updated table.

Replication implemented at OS- or middleware level	G06F11/1482
Time redundant execution of software on a single processing unit	G06F11/1497

G06F11/1497

Definition statement

Replace: The existing Definition statement with the following updated statement.

Pieces of software (module, function, complete application, ...) always being executed two or more times sequentially or concurrently (e.g. as threads) on a single processing unit in order to address transient faults.

Aspects relating to the provision of the identical input to all executions of the software. When more than two executions are foreseen, this can be used for error correction (not only detection).

Techniques used to instantiate multiple executions of redundant software, the temporary storage of intermediary results or the duplication of contexts for each instance, as well as the measures taken for the subsequent error detection or fault masking.

(Non-redundant) hardware support for time redundant execution.

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

CPC	**IPC**	**Action***
G06F 11/1446	G06F 11/1446	UPDATE
G06F 11/1448	G06F 11/1446	UPDATE
G06F 11/1451	G06F 11/1446	UPDATE
G06F 11/1453	G06F 11/1446	UPDATE
G06F 11/1456	G06F 11/1446	UPDATE
G06F 11/1458	G06F 11/1446	UPDATE
G06F 11/1461	G06F 11/1446	UPDATE
G06F 11/1464	G06F 11/1446	UPDATE
G06F 11/1466	G06F 11/1446	UPDATE
G06F 11/1469	G06F 11/1446	UPDATE
G06F 11/1471	G06F 11/1471	UPDATE
G06F 11/1474	G06F 11/1474	UPDATE
G06F 11/1479	G06F 11/1479	UPDATE
G06F 11/1482	G06F 11/1482	UPDATE
G06F 11/1484	G06F 11/1482	UPDATE
G06F 11/1487	G06F 11/1487	UPDATE
G06F 11/1489	G06F 11/1489	UPDATE
G06F 11/1492	G06F 11/1492	UPDATE
G06F 11/1494	G06F 11/1492	UPDATE
G06F 11/1497	G06F 11/1497	UPDATE

*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 not 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)

Scheme references impacted by this revision project

Location of reference to be changed	Referenced subclass or group to be changed	Action; New reference symbol; New text
G06F11/3055	G06F11/14	Replace the existing text with the following new text: error detection or correction of the data by redundancy in operations
G06F16/11	G06F11/14	Replace the existing text with the following new text: error detection or correction of the data by redundancy in operations
G06F16/113	G06F11/1446	Replace the existing text with the following new text: point-in-time backing up or restoration of persistent data
G06F16/122	G06F11/1446	Replace the existing text with the following new text: point-in-time backing up or restoration of persistent data
G06F16/128	G06F11/14 G06F11/16	Replace the existing text with the following new text: error detection or correction of the data by redundancy in operations or in hardware
G06F16/174	G06F11/14	Replace the existing text with the following new text: error detection or correction of the data by redundancy in operations

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
G06F3/0614	G06F11/14	Informative references	Replace the existing text with the following new text: Error detection or correction of the data by redundancy in operations
G06F3/0617	G06F11/14	Informative references	Replace the existing text with the following new text: Error detection or correction of the data by redundancy in operations

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Location of reference to be changed	Referenced subclass or group to be changed	Section of definition	Action; New reference symbol; New text
G06F3/0619	G06F11/1446	Informative references	Replace the existing text with the following new text: Point-in-time backing up or restoration of persistent data
G06F11/0703	G06F11/14	Informative references	Replace the existing text with the following new text: Error detection or correction of the data by redundancy in operations
G06F11/1415	G06F11/1479	Relationships with other classification places	Replace the existing text "G06F11/1479/low" with the following new text: G06F11/1479
G06F11/36	G06F11/1479	Informative references	Replace the existing text with the following new text: Generic software techniques for error detection or fault masking using middleware or operating system [OS] functionalities
G06F12/0804	G06F11/14	Informative references	Replace the existing text with the following new text: Error detection or correction of the data by redundancy in operations
G06F16/00	G06F11/14	Application-oriented references	Replace the existing text with the following new text: Error detection or correction of the data by redundancy in operations
G06F16/10	G06F11/14	Informative references	Replace the existing text with the following new text: Error detection or correction of the data by redundancy in operations
G06F16/113	G06F11/1446	Limiting references	Replace the existing text with the following new text: Point-in-time backing up or restoration of persistent data
G06F16/122	G06F11/1446	Limiting references	Replace the existing text with the following new text: Point-in-time backing up or restoration of persistent data

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Location of reference to be changed	Referenced subclass or group to be changed	Section of definition	Action; New reference symbol; New text
G06F16/128	G06F11/14 G06F11/16	Limiting references	Replace the existing text with the following new text: Error detection or correction of the data by redundancy in operations or in hardware
G06F16/174	G06F11/14	Limiting references	Replace the existing text with the following new text: Error detection or correction of the data by redundancy in operations
G06F16/185	G06F11/1446	Informative references	Replace the existing text with the following new text: Point-in-time backing up or restoration of persistent data
G11B25/10	G11B7/28 G06F11/14	Limiting references	Delete the entire section of limiting references.
G11B25/10	G06F11/14	Informative references	Insert the following entry to the end of the table of informative references: Error detection or correction of the data by redundancy in operations G06F11/14
G11B27/00	G06F11/14	Informative references	Replace the existing text with the following new text: Error detection or correction of the data by redundancy in operations
H04L41/06	G06F11/14	Relationships with other classification places	Replace the existing text with the following new text: Error detection or correction of the data by redundancy in operations
H04L41/0856	G06F11/1446	Informative references	Replace the existing text with the following new text: Point-in-time backing up or restoration of persistent data
H04L41/12	G06F11/1446	Informative references	Replace the existing text with the following new text: Point-in-time backing up or restoration of persistent data
H04L67/1048	G06F11/14	Informative references	Replace the existing text with the following new text: Error detection or correction of the data by redundancy in operations

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," **<u>referenced</u>** D symbols should indicate an action of "delete" or should indicate a replacement symbol and **<u>referenced</u>** 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.