DOCUMENTATION ISG-kernel

Functional description
Loading NC programs in local memory
(file caching)

Short Description:
FCT-C23

Preface

Legal information

This documentation was produced with utmost care. The products and scope of functions described are under continuous development. We reserve the right to revise and amend the documentation at any time and without prior notice.

No claims may be made for products which have already been delivered if such claims are based on the specifications, figures and descriptions contained in this documentation.

Personnel qualifications

This description is solely intended for skilled technicians who were trained in control, automation and drive systems and who are familiar with the applicable standards, the relevant documentation and the machining application.

It is absolutely vital to refer to this documentation, the instructions below and the explanations to carry out installation and commissioning work. Skilled technicians are under the obligation to use the documentation duly published for every installation and commissioning operation.

Skilled technicians must ensure that the application or use of the products described fulfil all safety requirements including all applicable laws, regulations, provisions and standards.

Further information

Links below (DE)

https://www.isg-stuttgart.de/produkte/softwareprodukte/isg-kernel/dokumente-und-downloads

or (EN)

https://www.isg-stuttgart.de/en/products/softwareproducts/isg-kernel/documents-and-downloads

contains further information on messages generated in the NC kernel, online help, PLC libraries, tools, etc. in addition to the current documentation.

Disclaimer

It is forbidden to make any changes to the software configuration which are not contained in the options described in this documentation.

Trade marks and patents

The name ISG®, ISG kernel®, ISG virtuos®, ISG dirigent® and the associated logos are registered and licensed trade marks of ISG Industrielle Steuerungstechnik GmbH.

The use of other trade marks or logos contained in this documentation by third parties may result in a violation of the rights of the respective trade mark owners.

Copyright

General and safety instructions

Icons used and their meanings

This documentation uses the following icons next to the safety instruction and the associated text. Please read the (safety) instructions carefully and comply with them at all times.

Icons in explanatory text

➢ Indicates an action.

⇨ Indicates an action statement.

⚠ DANGER

Acute danger to life!

If you fail to comply with the safety instruction next to this icon, there is immediate danger to human life and health.

⚠ CAUTION

Personal injury and damage to machines!

If you fail to comply with the safety instruction next to this icon, it may result in personal injury or damage to machines.

! Attention

Restriction or error

This icon describes restrictions or warns of errors.

---

i Notice

Tips and other notes

This icon indicates information to assist in general understanding or to provide additional information.

Example

General example

Example that clarifies the text.

Programing Example

NC programming example

Programming example (complete NC program or program sequence) of the described function or NC command.

Release Note

Specific version information

Optional or restricted function. The availability of this function depends on the configuration and the scope of the version.

Table of contents

1   Overview

Task

An NC subroutine that is used frequently can be loaded to a local memory (cache) so that file access operations by the CNC are independent of file system access times. As a result, time-consuming file system accessing operations can be avoided. This improves the NC program execution time and thus data throughput.

Release Note

This parameter is available starting at CNC Build V2.11.2800 and higher.

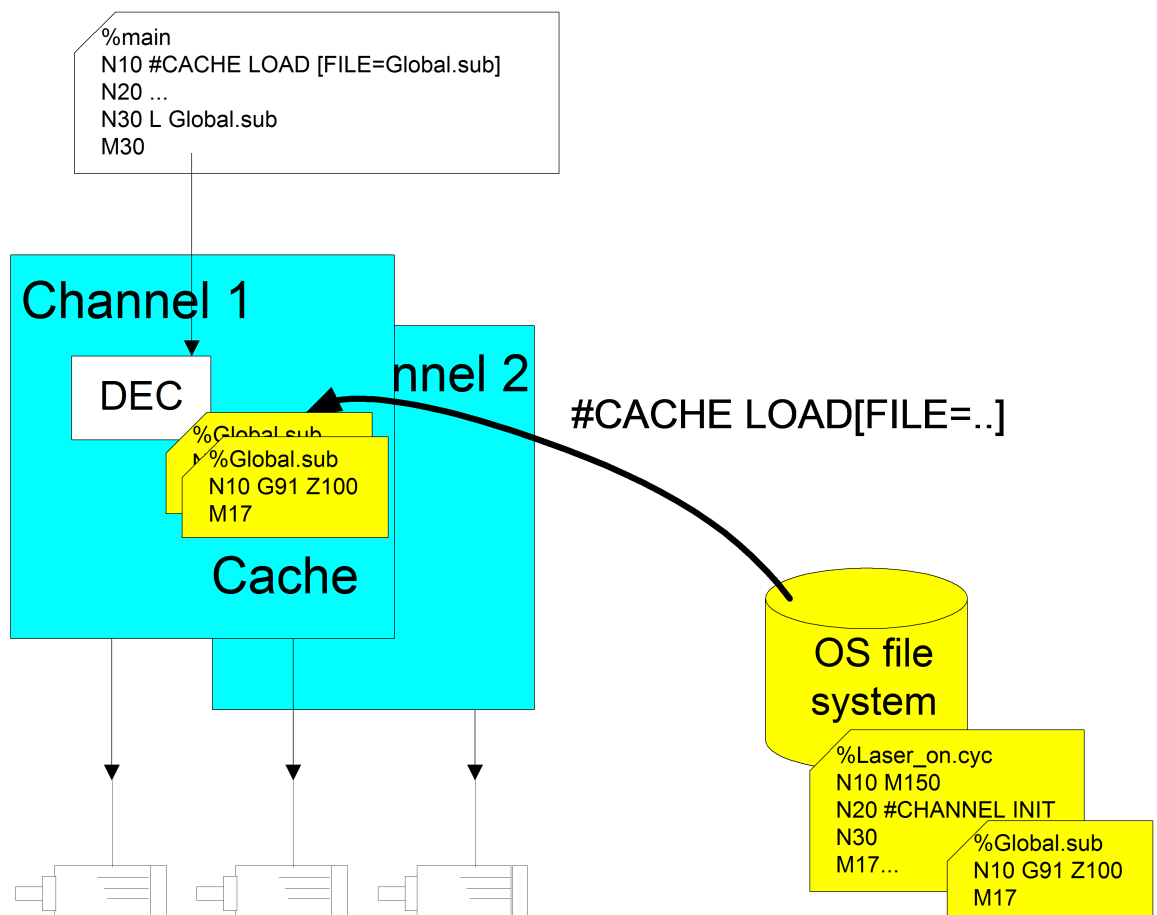**Accelerating file access times**

Fig. 1: Enabling file caching

Mandatory note on references to other documents

For the sake of clarity, links to other documents and parameters are abbreviated, e.g. [PROG] for the Programming Manual or P-AXIS-00001 for an axis parameter.

For technical reasons, these links only function in the Online Help (HTML5, CHM) but not in pdf files since pdfs do not support cross-linking.

1.1   Description, characteristics

Loading / clearing

Loading/clearing the local memory is initiated via an NC command for each NC channel.

Subroutines / cycles

Both global subroutines and global cycles can be loaded to the cache. The NC program name is not dependent on uppercase/lowercase notation (case-insensitive).

Search paths

The files are searched for according to the program paths set in the start-up list or channel list.

RESET

All previously loaded channel files are cleared from the local memory when the CNC channel is reset.

Maximum number of files and file size

The number (P-STUP-00051) of files to be stored locally and the maximum size (P-STUP-00052) of a file can be defined for each channel before the controller is started up.

2 Programming (#CACHE)

Cross-program loading/clearing of NC programs

File loading can be initiated using appropriate NC commands. The actions carried out take effect across all programs.

Files can be loaded to the local memory (cache), updated or cleared again using appropriate NC commands.

#CACHE LOAD [FILE*<name>*]   non-modal

FILE*<name>*   Name of the file that is to be loaded into the cache. An abort takes place with an error message if the cache is currently full or if the file is not found. The cache contents are updated (refreshed) if an attempt is made to load a file that is already in the cache.

#CACHE CLEAR [FILE*<name>*]   non-modal

FILE*<name>*   Name of the file to be cleared from the cache. No warning/error message is generated if the file is currently not in the cache.

#CACHE CLEAR ALL   non-modal

Programing Example

CACHE examples

```
N1200 #CACHE CLEAR[FILE=Laser_on.cyc]
N1210 #CACHE CLEAR ALL
N1220 #CACHE LOAD[FILE=Laser_on.cyc]
N1230 #CACHE CLEAR[FILE=Laser_on.cyc]
N1240 #CACHE LOAD[FILE=Macro.cyc]
N1250 #CACHE LOAD[FILE=Laser_off.cyc]
N1260 #CACHE LOAD[FILE=Laser_off.cyc]    ; refresh cache
N1270 #CACHE LOAD[FILE=Global.sub]
N3021 L CYCLE [NAME=Laser_on.cyc @P1=0 @P2=0]
N3021 G1 X47.0000
N3022 L Global.sub
```

3 Parameter

3.1 Overview

ID	Parameter	Description
P-STUP-00050	..decoder.function	Defines functionality for decoding
P-STUP-00051	..de-coder.max_cache_num-ber	Maximum number of possible cache files
P-STUP-00052	..de-coder.max_cache_size	Maximum size of a cache file

3.2 Description

P-STUP-00050	**Definition of decoder functions**
Description	The parameter defines specific functionalities for decoding. This disables specific functions for testing or for performance reasons.
Parameter	configuration.channel[i].decoder.function
Data type	STRING
Data range	FCT_USE_CACHED_FILES: Enabling file caching FCT_VOL_COMP_COMPUTATION: Calculations for machine calibration -: No functionalities defined.
Dimension	----
Default value	*
Remarks	Parameterisation example: Caching of maximal 4 files of maximum 4096 bytes each. *configuration.channel[0].decoder.function FCT_USE_CACHED_FILES* *configuration.channel[0].decoder.max_cache_number 4* *configuration.channel[0].decoder.max_cache_size 4096* * Note: The default value of variables is a blank string.

P-STUP-00051	Maximum number of possible cache files
Description	This parameter permits the user-specific definition of the maximum number of files available in the NC program cache.
Parameter	configuration.channel[i].decoder.max_cache_number
Data type	UNS32
Data range	0 <= P-STUP-00051 <= MAX(UNS32)
Dimension	----
Default value	0
Remarks	If the File Caching function is active with *FCT_USE_CACHED_FILES*, the default value is 4. Parameterisation example: Caching of maximal 6 files of maximum 6000 bytes each. *configuration.channel[0].decoder.function FCT_USE_CACHED_FILES* *configuration.channel[0].decoder.max_cache_number 6* *configuration.channel[0].decoder.max_cache_size 6000*

P-STUP-00052	Maximum size of a cache file
Description	This parameter permits the user-specific definition of the maximum size of an NC program cache.
Parameter	configuration.channel[i].decoder.max_cache_size
Data type	UNS32
Data range	0<= P-STUP-00052 <= MAX(UNS32)
Dimension	----
Default value	0
Remarks	If the File Caching function is active with *FCT_USE_CACHED_FILES*, the default value is 4096. Parameterisation example: Caching of maximal 6 files of maximum 6000 bytes each. *configuration.channel[0].decoder.function FCT_USE_CACHED_FILES* *configuration.channel[0].decoder.max_cache_number 6* *configuration.channel[0].decoder.max_cache_size 6000*

Keyword index

P

4 Appendix

4.1 Suggestions, corrections and the latest documentation

Did you find any errors? Do you have any suggestions or constructive criticism? Then please contact us at documentation@isg-stuttgart.de. The latest documentation is posted in our Online Help (DE/EN):

QR code link: https://www.isg-stuttgart.de/documentation-kernel/

The link above forwards you to:

https://www.isg-stuttgart.de/fileadmin/kernel/kernel-html/index.html

---

	Notice
i	**Change options for favourite links in your browser;**
	Technical changes to the website layout concerning folder paths or a change in the HTML framework and therefore the link structure cannot be excluded.
	We recommend you to save the above "QR code link" as your primary favourite link.

PDFs for download:

DE:
https://www.isg-stuttgart.de/produkte/softwareprodukte/isg-kernel/dokumente-und-downloads
EN:
https://www.isg-stuttgart.de/en/products/softwareproducts/isg-kernel/documents-and-downloads

E-Mail: documentation@isg-stuttgart.de