

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT3928925

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
PAVEL BORODULIN	06/14/2016
NABIL ABDEL-MEGUID EL-HINNAWY	06/14/2016
ROBERT MILES YOUNG	06/14/2016
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	NORTHROP GRUMMAN SYSTEMS CORPORATION
<b>Street Address:</b>	2980 FAIRVIEW PARK DRIVE
<b>City:</b>	FALLS CHURCH
<b>State/Country:</b>	VIRGINIA
<b>Postal Code:</b>	22042-4511
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	15188754
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(216)621-4072
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Phone:</b>	216-621-2234
<b>Email:</b>	rkline@tarolli.com
<b>Correspondent Name:</b>	TAROLLI, SUNDHEIM, COVELL & TUMMINO LLP
<b>Address Line 1:</b>	1300 EAST NINTH STREET
<b>Address Line 2:</b>	SUITE 1700
<b>Address Line 4:</b>	CLEVELAND, OHIO 44114
<b>ATTORNEY DOCKET NUMBER:</b>	NG(ES)025589 US PRI
<b>NAME OF SUBMITTER:</b>	CHRISTOPHER P. HARRIS
<b>SIGNATURE:</b>	/Christopher P Harris/
<b>DATE SIGNED:</b>	06/21/2016
<b>Total Attachments: 2</b>	
source=ES025589Assignment#page1.tif	
source=ES025589Assignment#page2.tif	

ASSIGNMENT

WHEREAS, I, Pavel Borodulin, together with Nabil Abdel-Meguid El-Hinnawy and Robert Miles Young, hereinafter referred to as Assignor have jointly invented certain new and useful improvements in A PCM SWITCH AND METHOD OF MAKING THE SAME, described in an application for United States Letters Patent, executed by me on the date as stated below;

WHEREAS, Northrop Grumman Systems Corporation, a Delaware corporation, having its principal place of business at 2980 Fairview Park Drive, Falls Church, VA 22042-4511, United States of America, hereinafter referred to as Assignee, is desirous of acquiring the entire right, title and interest in, to and under said improvements and said application:

NOW, THEREFORE, in consideration of Assignor's obligations to Northrop Grumman Systems Corporation, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Assignor has sold, assigned, transferred and set over, and by these presents does hereby sell, assign, transfer and set over, unto Assignee, its successors, legal representatives and assigns, Assignor's entire right, title and interest in, to and under said improvements, and said application and all divisions, renewals, continuations, and continuations-in-part thereof, and all United States Letters patent that may be granted thereon and all reissues and extensions thereof, and all applications for Letters Patent that may hereafter be filed for said improvements in any country or countries foreign to the United States, including the full right to claim for any such application the priority benefits of the International Convention for the Protection of Industrial Property and other priority-conferring treaties, and all Letters Patent that may be granted for said improvements in any country or countries foreign to the United States and all extensions, divisions, continuations, continuations-in-part, renewals and reissues thereof; and Assignor hereby authorizes and requests the Commissioner of Patents and Trademarks of the United States, and any official of any country or countries foreign to the United States, whose duty it is to issue patents on applications as aforesaid, to issue all Letters Patent for said improvements to said Assignee, its successors, legal representatives and assigns, in accordance with the terms of this instrument;

Assignor hereby acknowledges that at the time of making the improvements herein identified, Assignor was under an obligation to assign to Assignee, Assignor's entire right, title and interest in, to and under said improvements;

Assignor hereby covenants that Assignor has full right to convey the interest herein assigned, and that Assignor has not executed, and will not execute, any agreement in conflict herewith and that Assignee, Northrop Grumman Systems Corporation, its successors, assigns and other legal representatives shall have the right to hold and enjoy for its and their own use and benefit, to the end of the term or terms for which such Letters Patent shall or may be granted, reissued or extended as fully and completely as the same right could have been held and enjoyed by Assignor had this Assignment not been made.

Assignor hereby further covenants and agrees to communicate to Assignee, its successors, legal representatives and assigns, any and all facts known to Assignor respecting said improvements; to promptly provide Assignee with all documents relating to said improvements, said invention, and said Letters Patent as may be known or accessible to Assignor; to testify as to the same in any interference or litigation or other legal proceedings related thereto; to sign all lawful papers, execute all extensions, continuations, continuations-in-part, divisional and reissue applications; and to make all rightful oaths or declarations and generally do everything possible to aid Assignee, its successors, legal representatives and assigns in obtaining and enforcing all the rights herein conveyed for said improvements in all countries without further compensation, but at the expense of Assignee, its successors, legal representatives and assigns.

IN WITNESS WHEREOF, the undersigned has executed and delivered this instrument this 14 day of June, 2016, and has executed the referenced patent application on the 14 day of June, 2016.

Pavel Borodulin  
PAVEL BORODULIN

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

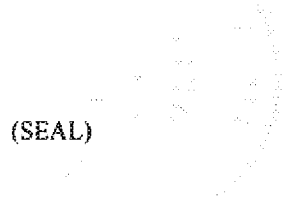
STATE OF Maryland  
COUNTY OF Anne Arundel

On June 14 2016 before me, Mary J. Stanley, personally appeared Pavel Borodulin, proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to this instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument to be the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of Maryland that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Mary J. Stanley  
**MARY J. STANLEY**  
NOTARY PUBLIC  
CARROLL COUNTY  
MARYLAND  
MY COMMISSION EXPIRES AUGUST 9, 2018



(SEAL)

IN WITNESS WHEREOF, the undersigned has executed and delivered this instrument this 14<sup>th</sup> day of June, 2016, and has executed the referenced patent application on the 14<sup>th</sup> day of June, 2016.

NABIL ABDEL-MEGUID EL-HINNAWY

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF Maryland

COUNTY OF Anne Arundel<sup>SS</sup>

On June 14<sup>2016</sup> before me, Mary J. Stanley, personally appeared Nabil Abdel-Meguid El-Hinnawy, proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to this instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument to be the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of Maryland that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Mary J. Stanley  
MARY J. STANLEY  
NOTARY PUBLIC  
CARROLL COUNTY  
MARYLAND  
MY COMMISSION EXPIRES AUGUST 9, 2018

(SEAL)

IN WITNESS WHEREOF, the undersigned has executed and delivered this instrument this 14<sup>th</sup> day of June, 2016, and has executed the referenced patent application on the 14<sup>th</sup> day of June, 2016.

Robert Miles Young  
ROBERT MILES YOUNG

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF Maryland

COUNTY OF Anne Arundel<sup>SS</sup>

On June 14<sup>2016</sup> before me, Mary J. Stanley, personally appeared Robert Miles Young, proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to this instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument to be the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of Maryland that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Mary J. Stanley  
Notary's Signature

(SEAL)

MARY J. STANLEY  
NOTARY PUBLIC  
CARROLL COUNTY  
MARYLAND  
MY COMMISSION EXPIRES AUGUST 9, 2018