

## PATENT ASSIGNMENT COVER SHEET

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 Stylesheet Version v1.2

EPAS ID: PAT7319516

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
DAH-WEIH DUAN	03/08/2022
ELIZABETH T. KUNKEE	03/18/2022
MARTIN RODEN	04/20/2022
LAURA WOO	04/25/2022
<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>
<b>Application Number:</b>	17198700
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(630)286-7611
<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>	630-286-7600
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<b>ATTORNEY DOCKET NUMBER:</b>	011567-0030/US/NPV
<b>NAME OF SUBMITTER:</b>	GARY R. GILLEN
<b>SIGNATURE:</b>	/Gary R. Gillen/
<b>DATE SIGNED:</b>	05/09/2022
<b>Total Attachments: 8</b>	
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source=20220509\_011567-0030USNPV\_3\_Roden\_Signed\_Assignment#page2.tif  
source=20220509\_011567-0030USNPV\_4\_Woo\_Signed\_Assignment#page1.tif  
source=20220509\_011567-0030USNPV\_4\_Woo\_Signed\_Assignment#page2.tif

### ASSIGNMENT

WHEREAS, I, Dah-Weih Duan, together with Elizabeth T. Kunkee, Martin E. Roden and Laura M. Woo, hereinafter referred to as Assignor, have jointly invented certain new and useful improvements in MICROELECTRONICS H-FRAME DEVICE described in an application for United States Letters Patent Application Serial No. 17/198,700 filed on March 11, 2021, 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.

The undersigned has executed and delivered this instrument this 24th day of March, 2022, and has executed the referenced patent application on the 24th day of March, 2022.

Dah-Wei Duan  
Dah-Wei Duan

The undersigned has executed and delivered this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 2022, and has executed the referenced patent application on the \_\_\_\_\_ day of \_\_\_\_\_, 2022.

\_\_\_\_\_  
Elizabeth T. Kunkee

The undersigned has executed and delivered this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 2022, and has executed the referenced patent application on the \_\_\_\_\_ day of \_\_\_\_\_, 2022.

\_\_\_\_\_  
Martin E. Roden

The undersigned has executed and delivered this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 2022, and has executed the referenced patent application on the \_\_\_\_\_ day of \_\_\_\_\_, 2022.

\_\_\_\_\_  
Laura M. Woo

**ASSIGNMENT**

**WHEREAS**, I, Dah-Wei Duan, together with Elizabeth T. Kunkee, Martin E. Roden and Laura M. Woo, hereinafter referred to as Assignor, have jointly invented certain new and useful improvements in MICROELECTRONICS H-FRAME DEVICE described in an application for United States Letters Patent Application Serial No. 17/198,700 filed on March 11, 2021, executed by me on the date as stated below;

**WHEREAS**, Northrop Grumman Systems Corporation, a Delaware corporation, having its principal place of business at:

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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.

The undersigned has executed and delivered this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 2022, and has executed the referenced patent application on the \_\_\_\_\_ day of \_\_\_\_\_, 2022.

\_\_\_\_\_  
Dah-Weih Duan

The undersigned has executed and delivered this instrument this 18 day of March, 2022, and has executed the referenced patent application on the 18 day of March, 2022.

Elizabeth T. Kunkee  
Elizabeth T. Kunkee

The undersigned has executed and delivered this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 2022, and has executed the referenced patent application on the \_\_\_\_\_ day of \_\_\_\_\_, 2022.

\_\_\_\_\_  
Martin E. Roden

The undersigned has executed and delivered this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 2022, and has executed the referenced patent application on the \_\_\_\_\_ day of \_\_\_\_\_, 2022.

\_\_\_\_\_  
Laura M. Woo

**ASSIGNMENT**

**WHEREAS**, I, Dah-Weih Duan, together with Elizabeth T. Kunkee, Martin E. Roden and Laura M. Woo, hereinafter referred to as Assignor, have jointly invented certain new and useful improvements in MICROELECTRONICS H-FRAME DEVICE described in an application for United States Letters Patent Application Serial No. 17/198,700 filed on March 11, 2021, executed by me on the date as stated below;

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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;

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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.

The undersigned has executed and delivered this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 2022, and has executed the referenced patent application on the \_\_\_\_\_ day of \_\_\_\_\_, 2022.

\_\_\_\_\_  
**Dah-Wei Duan**

The undersigned has executed and delivered this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 2022, and has executed the referenced patent application on the \_\_\_\_\_ day of \_\_\_\_\_, 2022.

\_\_\_\_\_  
**Elizabeth T. Kunkee**

The undersigned has executed and delivered this instrument this 20th day of April, 2022, and has executed the referenced patent application on the \_\_\_\_\_ day of \_\_\_\_\_, 2022.

  
\_\_\_\_\_  
**Martin E. Roden**

The undersigned has executed and delivered this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 2022, and has executed the referenced patent application on the \_\_\_\_\_ day of \_\_\_\_\_, 2022.

\_\_\_\_\_  
**Laura M. Woo**



**ASSIGNMENT**

**WHEREAS**, I, Dah-Weih Duan, together with Elizabeth T. Kunkee, Martin E. Roden and Laura M. Woo, hereinafter referred to as Assignor, have jointly invented certain new and useful improvements in MICROELECTRONICS H-FRAME DEVICE described in an application for United States Letters Patent Application Serial No. 17/198,700 filed on March 11, 2021, executed by me on the date as stated below;

**WHEREAS**, Northrop Grumman Systems Corporation, a Delaware corporation, having its principal place of business at:

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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;

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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.

The undersigned has executed and delivered this instrument this 25<sup>th</sup> day of April, 2022, and has executed the referenced patent application on the \_\_\_\_\_ day of \_\_\_\_\_, 2022.

\_\_\_\_\_  
**Dah-Weih Duan**

The undersigned has executed and delivered this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 2022, and has executed the referenced patent application on the \_\_\_\_\_ day of \_\_\_\_\_, 2022.

\_\_\_\_\_  
**Elizabeth T. Kunkee**

The undersigned has executed and delivered this instrument this \_\_\_\_\_ day of \_\_\_\_\_, 2022, and has executed the referenced patent application on the \_\_\_\_\_ day of \_\_\_\_\_, 2022.

\_\_\_\_\_  
**Martin E. Roden**

The undersigned has executed and delivered this instrument this 25 day of April, 2022, and has executed the referenced patent application on the \_\_\_\_\_ day of \_\_\_\_\_, 2022.

Laura M. Woo  
**Laura M. Woo**