



## SECURITIES AND EXCHANGE COMMISSION

[Release No. 34-97541; File No. SR-BX-2023-012]

### **Self-Regulatory Organizations; Nasdaq BX, Inc.; Notice of Filing and Immediate Effectiveness of Proposed Rule Change to Offer Field-Programmable Gate Array Technology as an Optional Delivery Mechanism for BX TotalView**

May 22, 2023.

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 (“Act”),<sup>1</sup> and Rule 19b-4 thereunder,<sup>2</sup> notice is hereby given that on May 12, 2023, Nasdaq BX, Inc. (“BX” or “Exchange”) filed with the Securities and Exchange Commission (“SEC” or “Commission”) the proposed rule change as described in Items I and II below, which Items have been prepared by the Exchange. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

I. Self-Regulatory Organization’s Statement of the Terms of Substance of the Proposed Rule Change

The Exchange proposes to offer field-programmable gate array (“FPGA”) technology as an optional delivery mechanism for BX TotalView.

II. Self-Regulatory Organization’s Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the Exchange included statements concerning the purpose of and basis for the proposed rule change and discussed any comments it received on the proposed rule change. The text of these statements may be examined at the places specified in Item IV below. The Exchange has prepared summaries, set forth in sections A, B, and C below, of the most significant aspects of such statements.

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<sup>1</sup> 15 U.S.C. 78s(b)(1).

<sup>2</sup> 17 CFR 240.19b-4.

A. Self-Regulatory Organization’s Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

1. Purpose

BX proposes to offer field-programmable gate array (“FPGA”) technology as an optional delivery mechanism for BX TotalView.<sup>3</sup>

FPGA technology has been used for over a decade by the Nasdaq Stock Market to facilitate customer ingestion of large quantities of information at periods of peak activity. FPGA hardware is designed to facilitate the processing of large data packets without introducing variable queuing, thereby improving the predictability of data transfer on telecommunications ports, a process known as “determinism.” Outside of peak activity, FPGA helps customers establish more predictable consistency in message throughput over the course of the trading day.

The Exchange proposes to use FPGA technology to process BX TotalView data. BX TotalView is a real-time market data product that provides full order depth using a series of order messages to track the life of customer orders in the BX market, as well as trade data for BX executions and administrative messages such as Trading Action messages, Symbol Directory, and Event Control messages.<sup>4</sup> BX TotalView allows users to view all displayed quotes and orders, access total displayed anonymous interest, and see total size of all displayed quotes and orders.

FPGA technology has been offered by the Nasdaq Stock Exchange for over a decade, and the Nasdaq Options Market for nearly as long,<sup>5</sup> and has been cited by the SEC as an example of a

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<sup>3</sup> A proposal to make FPGA technology also available at the PSX Exchange is being submitted together with this proposal. The Exchange initially filed this Proposal on May 4, 2023 (SR-BX-2023-011). On May 12, 2023, the Exchange withdrew SR-BX-2023-011 and replaced it with the instant filing. This filing corrects an error in the initial submission, but includes no substantive changes.

<sup>4</sup> See Nasdaq BX, Inc. Rules, Equity 7, Section 123 (BX TotalView); see also Securities Exchange Act Release No. 59307 (January 28, 2009), 74 FR 6069 (February 4, 2009) (establishing fees for BX TotalView).

<sup>5</sup> See Securities Exchange Act Release No. 67297 (June 28, 2012), 77 FR 39752 (July 5, 2012) (SR-Nasdaq-2012-063) (introducing FPGA technology); see also Nasdaq Data

technology useful in the distribution of market data products.<sup>6</sup> It is a well-established technology that is familiar to market participants.

The purchase of FPGA technology is entirely optional because FPGA functionality can be replicated through a variety of software solutions. Our experience with Nasdaq TotalView is that some customers use FPGA technology to address determinism, others avail themselves of software solutions, some use both, and others alternate between both. Some market participants that have purchased FPGA technology in the past have discontinued its use. There are no systematic differences among market participants that choose to use or not to use FPGA technology beyond the compatibility of FPGA technology with the customer's specific technical systems, which can change over time as systems are modified, replaced or updated.

The proposal to offer FPGA technology to customers of BX TotalView is in response to customer demand. To date, lower levels of peak activity at the BX Exchange relative to the Nasdaq Exchange have been associated with low levels of customer interest in this product. Recently, however, BX has heard from customers interested in using FPGA technology for BX TotalView. To address this customer demand, and to drive liquidity to the BX Exchange by making it a more attractive trading venue, BX has decided to offer this product to meet evolving customer needs.

The Exchange will submit a proposed fee schedule for this product in a separate filing.

The Exchange intends to make this product available on June 1, 2023.

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News 2012-13, available at <http://www.nasdaqtrader.com/TraderNews.aspx?id=dn2012-13> (introducing TotalView FPGA service as of August 1, 2012); Securities Exchange Act Release No. 74745 (April 16, 2015), 80 FR 22588 (April 22, 2015) (SR-Nasdaq-2015-035) (establishing FPGA for the Nasdaq Options Market); see also The Nasdaq Stock Market LLC Rules, Equity 7, Section 126(c) (Hardware-Based Delivery of Nasdaq Depth data).

<sup>6</sup> See Securities Exchange Act Release No. 90610, 86 FR 18596, 18647 (April 9, 2021) (File No. S7-03-20) (listing field programmable gate array services as an example of a technological innovation that could be employed by competing consolidators as part of the Market Data Infrastructure rule).

## 2. Statutory Basis

The Exchange believes that its proposal is consistent with Section 6(b) of the Act,<sup>7</sup> in general, and furthers the objectives of Section 6(b)(5) of the Act,<sup>8</sup> in particular, in that it is designed to promote just and equitable principles of trade, to remove impediments to and perfect the mechanism of a free and open market and a national market system, and in general to protect investors and the public interest.

As noted above, the current proposal to offer FPGA technology with BX TotalView is in response to changes in customer demand. This proposal reflects the need for the Exchange to stay competitive in the market for exchange services. It also promotes competition and innovation by providing market participants additional choices in the transmission of depth of book data.

Offering this well-recognized technology to customers will facilitate their usage of the data. If the technology is not ultimately beneficial, the customer can discontinue it at any time, and for any reason, as they have done in the past. Customers that choose not to purchase FPGA technology will not be affected because these customers have alternative methods to facilitate determinism available to them.

Approval of this proposal is in the public interest and otherwise furthers the objectives of Section 6(b)(5) of the Act because it promotes competition, facilitates the ingestion of market data by certain market participants, and has no impact on customers that do not elect to avail themselves of the service.

### B. Self-Regulatory Organization's Statement on Burden on Competition

The Exchange does not believe that the proposed rule change will impose any burden on competition not necessary or appropriate in furtherance of the purposes of the Act.

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<sup>7</sup> 15 U.S.C. 78f(b).

<sup>8</sup> 15 U.S.C. 78f(b)(5).

Nothing in the Proposal burdens inter-market competition (the competition among self-regulatory organizations) because approval of the Proposal does not impose any burden on the ability of other exchanges to compete. All exchanges are free introduce products that facilitate the ingestion of data at peak periods.

Nothing in the Proposal burdens intra-market competition (the competition among consumers of exchange data) because FPGA technology will be available to any market participant on a non-discriminatory basis.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received from Members, Participants, or Others

No written comments were either solicited or received.

III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action

FINRA has filed the proposed rule change pursuant to Section 19(b)(3)(A) of the Act<sup>9</sup> and Rule 19b-4(f)(6) thereunder.<sup>10</sup> Because the proposed rule change does not: (i) significantly affect the protection of investors or the public interest; (ii) impose any significant burden on competition; and (iii) become operative prior to 30 days from the date on which it was filed, or such shorter time as the Commission may designate, if consistent with the protection of investors and the public interest, the proposed rule change has become effective pursuant to Section 19(b)(3)(A) of the Act and Rule 19b-4(f)(6) thereunder.

A proposed rule change filed under Rule 19b-4(f)(6)<sup>11</sup> normally does not become operative prior to 30 days after the date of the filing. However, Rule 19b-4(f)(6)(iii)<sup>12</sup> permits the Commission to designate a shorter time if such action is consistent with the protection of investors and the public interest. The Exchange has asked the Commission to waive the 30-day

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<sup>9</sup> 15 U.S.C. 78s(b)(3)(A).

<sup>10</sup> 17 CFR 240.19b-4(f)(6).

<sup>11</sup> 17 CFR 240.19b-4(f)(6).

<sup>12</sup> 17 CFR 240.19b-4(f)(6).

operative delay so that the proposal may become operative on June 1 so that any potential customer that wishes to obtain the FPGA service would be able to do so on June 1, 2023. The Exchange argues that an operative date of June 1, 2023 is consistent with the protection of investors and the public interest because market data services are typically initiated at the beginning of a calendar month, and the June 1 operative date would allow any interested customer to utilize the service for the entire month, while still allowing any interested party almost a month to review the proposal.<sup>13</sup> The Exchange also argues that the benefits of the full month of operation outweigh any costs associated with a slightly shorter operative delay, given that FPGA is a well-established technology that is familiar to market participants. The Commission believes that waiver of the 30-day operative delay is consistent with the protection of investors and the public interest. Accordingly, the Commission hereby waives the operative delay and designates the proposed rule change as operative upon filing.<sup>14</sup>

At any time within 60 days of the filing of the proposed rule change, the Commission summarily may temporarily suspend such rule change if it appears to the Commission that such action is necessary or appropriate in the public interest, for the protection of investors, or otherwise in furtherance of the purposes of the Act. If the Commission takes such action, the Commission shall institute proceedings to determine whether the proposed rule change should be approved or disapproved.

#### IV. Solicitation of Comments

Interested persons are invited to submit written data, views, and arguments concerning the foregoing, including whether the proposed rule change is consistent with the Act. Comments may be submitted by any of the following methods:

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<sup>13</sup> The Exchange initially filed the substance of this proposed rule change on May 4, 2023 as SR-BX-2023-011. This initial proposal was withdrawn and replaced on May 12, 2023.

<sup>14</sup> For purposes only of waiving the 30-day operative delay, the Commission has also considered the proposed rule's impact on efficiency, competition, and capital formation. See 15 U.S.C. 78c(f).

Electronic comments:

- Use the Commission's Internet comment form (<http://www.sec.gov/rules/sro.shtml>); or
- Send an e-mail to [rule-comments@sec.gov](mailto:rule-comments@sec.gov). Please include File Number SR-BX-2023-012 on the subject line.

Paper comments:

- Send paper comments in triplicate to Secretary, Securities and Exchange Commission, 100 F Street, NE, Washington, DC 20549-1090.

All submissions should refer to File Number SR-BX-2023-012. This file number should be included on the subject line if e-mail is used. To help the Commission process and review your comments more efficiently, please use only one method. The Commission will post all comments on the Commission's Internet website (<http://www.sec.gov/rules/sro.shtml>). Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for website viewing and printing in the Commission's Public Reference Room, 100 F Street, NE, Washington, DC 20549 on official business days between the hours of 10:00 a.m. and 3:00 p.m. Copies of the filing also will be available for inspection and copying at the principal office of the Exchange. Do not include personal identifiable information in submissions; you should submit only information that you wish to make available publicly. We may redact in part or withhold entirely from publication submitted material that is obscene or subject to copyright protection. All submissions should refer to File Number SR-BX-2023-012, and should be submitted on or before [INSERT DATE 21 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*].

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.<sup>15</sup>

**Sherry R. Haywood,**

*Assistant Secretary.*

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<sup>15</sup> 17 CFR 200.30-3(a)(12).